WHOLESALER'S SALESMAN

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330 West 42nd Street, New York 18, N. Y.

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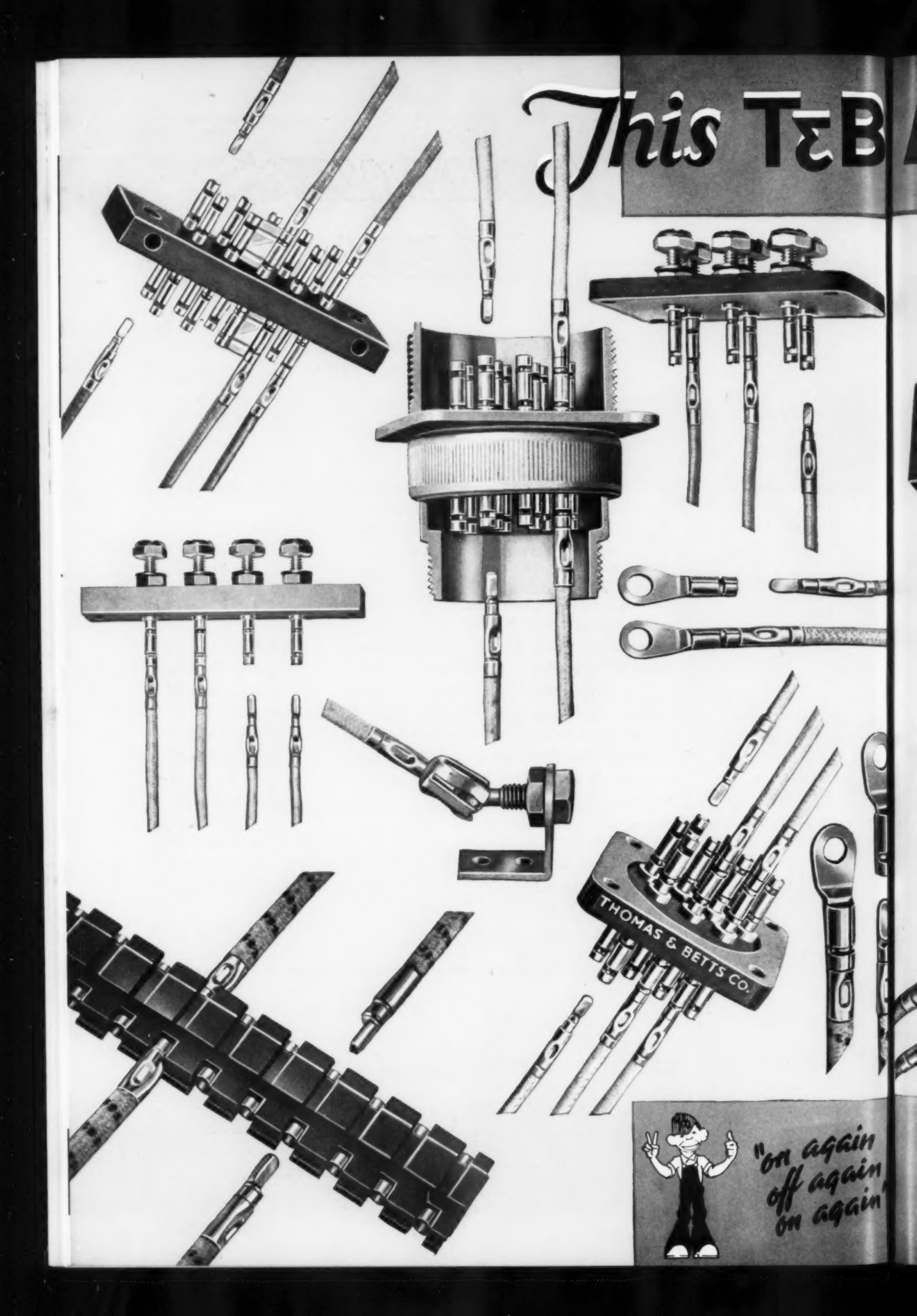
From .....

.....

To .....

.....

Signed .....


This T&B
THOMAS & BETTS CO.
"on again
off again
on again"

BRAND NEW LINE...

. . . is going through T&B Distributors exclusively

THE T&B STA-KON DISCONNECT* WAY OF WIRING

Here you have a few previews of the new far-reaching extension of the T&B Sta-Kon Terminal line. Like all T&B products, the T&B Disconnect Wiring System is sold under the basic T&B Plan of 100% Wholesaler Distribution.

It opens vast new markets with endless possibilities for the T&B Electrical Wholesaler, both present and Post-War, including:

Electronics and Radio
Aircraft and Aircraft Assemblies
Refrigerators and Appliances
Signalling and Control Devices of all kinds
Electrically operated Machines and Equipment
Installation and Maintenance of Electric Motors
Utilities and Industrial Plants
Automobile and Car Builders
Communications and Sound Equipment
Fluorescent Lighting Fixtures

And many other. In fact, wherever it's desirable to connect, disconnect and reconnect wires at will and quickly. Countless combination possible for any special requirement.

No soldering—installed with standard T&B Sta-Kon Pressure Tools. For complete information and details write to us for Bulletin #522, or get in touch with our nearest District Office. Fully approved.

* Patent Pending

THE THOMAS & BETTS CO

INCORPORATED

manufacturers of electrical fittings since 1899

ELIZABETH, 1, NEW JERSEY

In Canada: Thomas & Betts Ltd. Montreal

It's

It's **OK**
in every way

APPLETON Rubber Co.

FRANKLIN, MASS.

OK BRAND and PARATEX Friction and Rubber Tapes

Heartbreak house or a real home?

YOU AND YOUR WIFE know just the house you want to build. She has good taste . . . and you're darned practical. Both of you envision your dream home... the most important investment of your life.

Yes, she has good taste and you're practical . . . yet you wind up with a white elephant, a heartbreak house. Drafty rooms ... noisy plumbing .. damp basement... dinky closets . . . inadequate hot water—irritating to live with – costly to correct. Can all that be avoided?

Yes . . . with an architect. Not only does he prevent disappointments but his skillful planning gives full realization to your hopes . . . a real home!

The architect's ability to coordinate house and lot, his experience with materials and builders, his training and foresight—all assure lasting beauty of design, fair resale value, low maintenance cost.

• • •

Imagine building a school or a skyscraper without an Architect-Engineer! Make sure your house is attractive and livable—protect your investment with an architect

Plan your home now!

START RIGHT— WITH AN ARCHITECT

EDWARDS

SINCE 1893

ELECTRICAL SIGNALING

Bells · Chimes · Telephones · Alarms for Homes, Offices, Schools, Hospitals

FREE . . . GET THIS NEW ILLUSTRATED BOOK!

EDWARDS AND COMPANY, NORWALK, CONN.

Please send copy of book "How to Plan Your New Home."

Name_____

Street_____

City_____ State_____

(Save Postage—Paste Coupon on Penny Post Card)

YOUR MARKET WILL BE IN THE HOMES THEY'LL BUILD

Please read this Edwards' ad (shown at the left). It's one of a series in TIME and AMERICAN HOME magazines.

Where do you fit into this picture? How does this advertising affect you? All indications point to the greatest postwar building period this country has ever known. The amazing response from home planners to this advertising confirms this fact in a spectacular way. But it's our aim to prove to prospective home builders it pays to "Start Right with an Architect."

Selling the architect to the public means better building. Better building means more and better wiring and electrical equipment. This advertising educates the public . . . creates good will of the architect . . . and helps to build a more profitable postwar market for you.

Edwards and Company
NORWALK, CONN.

It's

It's **OK**
in every way

APPLETON Rubber Co.

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Plan your home now!

START RIGHT— WITH AN ARCHITECT

EDWARDS

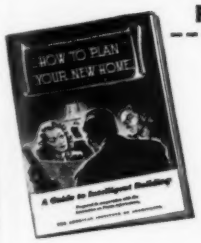
SINCE 1872

ELECTRICAL SIGNALING

Bells · Chimes · Telephones · Alarms

for Homes, Offices, Schools, Hospitals

FREE . . . GET THIS NEW ILLUSTRATED BOOK!



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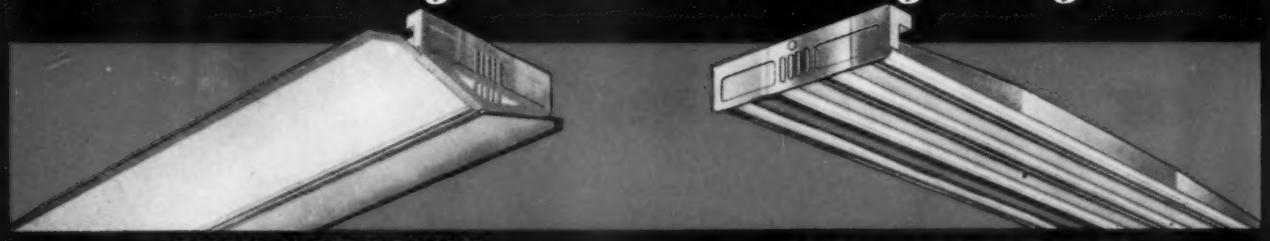
Edwards and Company
NORWALK, CONN.

In a nut-shell..

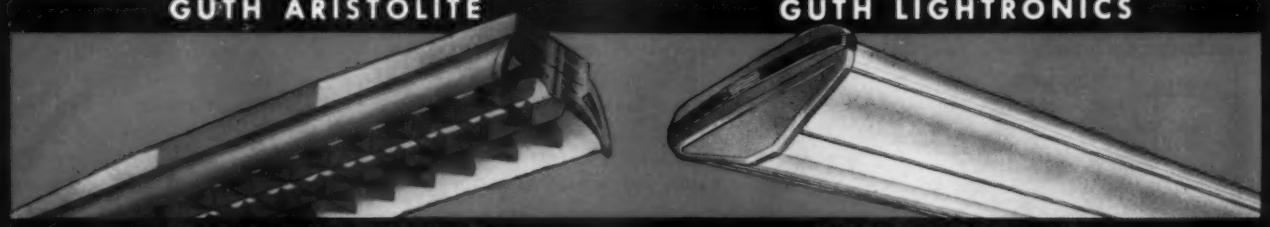
There's a Guth FLUORESCENT FIXTURE

for Every Fluorescent Lighting Need!



GUTH ARISTOLITE

GUTH LIGHTRONICS



GUTH FUTURLITER

GUTH EXCELUX

GUTH SUPER-ILLUMINATOR

- The amazing completeness of the GUTH Fluorescent Line assures you, and your customers, of your unfailing ability to meet every modern lighting need. Write or wire today for Representative to call with actual Samples.

Important

Guth High-Bays of Aluminum NOW AVAILABLE!

Genuine Pre-War Models of GUTH High-Bays are ready now for shipment on A-1-J priority or higher! This prompt availability is the result of—1) Special Government authorization; 2) Our own Aluminum already on-hand; 3) our Alzak Department in steady operation. Remember, it's *PATRIOTIC* to install the longest-lasting, best-performing High-Bays. Push GUTH High-Bays hard! Write for Folder 760—just published.

Ultra-Violet

FOR SCHOOLS • HOSPITALS • OFFICES

GUTH Germicidal Fixtures, which destroy air-carried bacteria and help control contagion, provide you a new, fertile field for sales and profits. Full engineering data, layout tables, advertising stuffers, and a new GUTH Germicidal line are ready NOW. Get full details NOW!

The Edwin F. Guth Co. • 2615 Washington Ave. • St. Louis 3, Missouri

Guth

"...the boss deserves a medal for THAT"

"He sure knew what he was doing when he had that *EMERSON-ELECTRIC* Exhaust Fan put in!"

"Take it from an old-timer—that fan makes a whale of a difference! It used to get so stuffy in here the boys couldn't do a halfway decent job. The boss saw something had to be done—and that fan really cleared the air for action! He was plenty smart, too, because pretty soon the war came along and there just weren't any more exhaust fans to be had! Believe me, there are plenty of bosses kicking themselves right now because they didn't get sufficient exhaust fans while they still had the chance!"

After Victory, business men will again be placing their orders for Emerson-Electric Exhaust Fans to clear the air and increase efficiency in *their* stores, offices, and factories.

An illustrated catalog, describing the various types and sizes of Emerson-Electric Exhaust Fans, is available for postwar planners.

THE EMERSON ELECTRIC MANUFACTURING COMPANY
SAINT LOUIS (3), MO.
Branches: New York • Chicago • Detroit • Los Angeles • Davenport

Four of the Many Places Where Emerson-Electric Exhaust Fans Are in Daily Service

IN STORES throughout the nation, Emerson-Electric Exhaust Fans are keeping the air moving—and keeping customers comfortable.

OFFICE WORKERS function more efficiently in an atmosphere kept free of smoke and stuffiness, by Emerson-Electric Exhaust Fans.

RESTAURANTS encourage patronage by eliminating excessive heat and cooking odors with Emerson-Electric Exhaust Fans.

IN FACTORIES AND FOUNDRIES, excessive heat, fumes, steam and smoke are removed with Emerson-Electric Exhaust Fans.

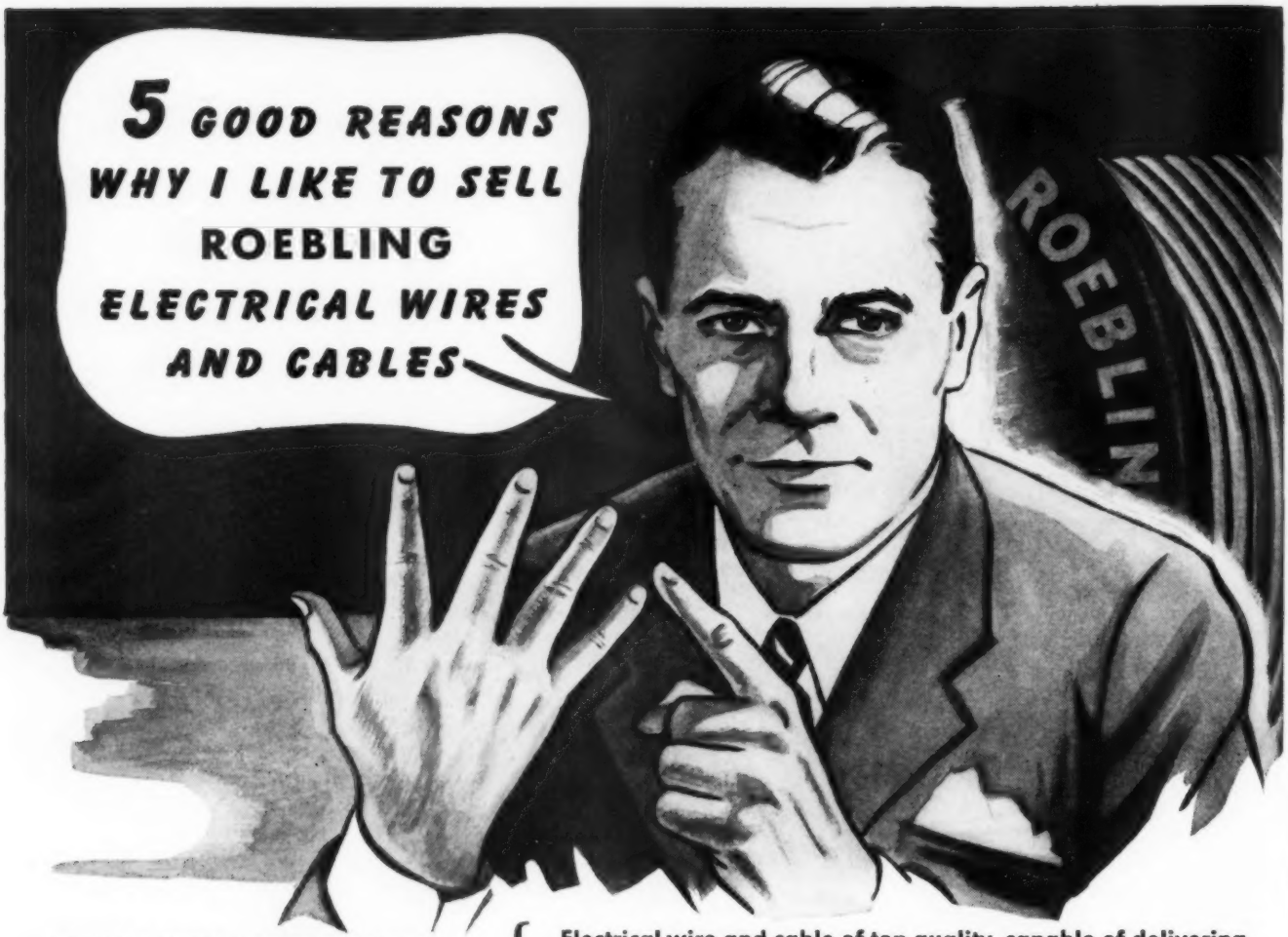
Keep Backing the Attack *Buy War Bonds Regularly*

EMERSON ELECTRIC

MOTORS • FANS • APPLIANCES

LIFE
APRIL 3, 1944

This full-page ad in LIFE Magazine offers postwar planners an illustrated catalog, describing the various types and sizes of Emerson-Electric Exhaust Fans. If you do not have our Catalog Unit No. X4559 in your files, we suggest that you write and ask for your copy.



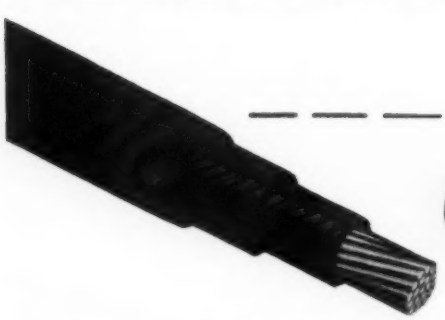
QUALITY PRODUCT: Electrical wire and cable of top quality, capable of delivering service that means satisfied customers and repeat business.

COMPLETE LINE: A line of electrical wires and cables that is complete and permits supplying the requirements of every user.

FAIR PRICE: A price basis that permits competitive selling, yet assures a reasonable profit.

CLEAN-CUT POLICY: A business relationship in which the status of competition and territories is clearly understood and abided by.

SALES CO-OPERATION: Thorough-going sales assistance in the form of industry-wide advertising, frequent direct mail contacts and engineering service made available through the distributor.



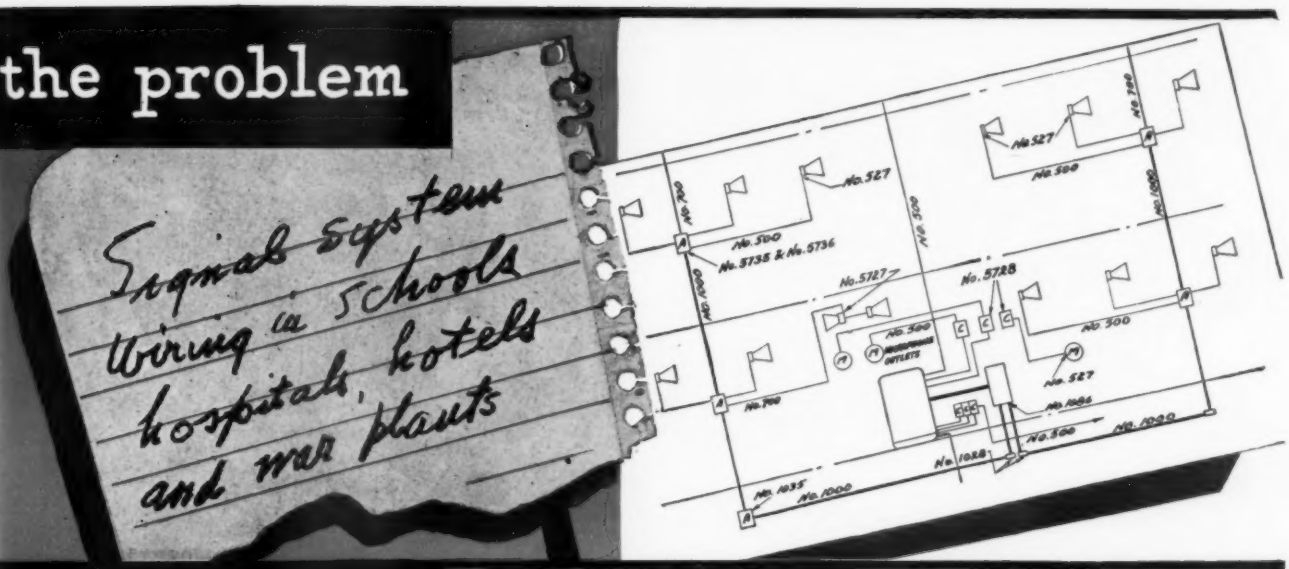
JOHN A. ROEBLING'S SONS COMPANY
TRENTON 2, NEW JERSEY
Branches and Warehouses in Principal Cities

ROEBLING

PACEMAKER IN WIRE PRODUCTS

WIRE ROPE AND STRAND • FITTINGS • AERIAL WIRE ROPE SYSTEMS • COLD ROLLED STRIP • HIGH AND LOW CARBON ACID AND BASIC OPEN HEARTH STEELS • ROUND AND SHAPED WIRE • ELECTRICAL WIRES AND CABLES • WIRE CLOTH AND NETTING AIRCORD, SWAGED TERMINALS AND ASSEMBLIES • SUSPENSION BRIDGES AND CABLES

the problem



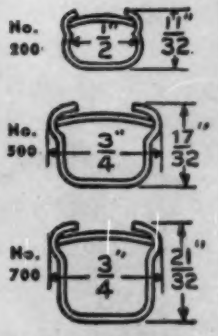
the answer

WIREMOLD

SURFACE METAL RACEWAYS

● Wiremold makes it easier to plan and install special wiring for fire alarm, radio, process control, plant telephone and call signal systems.

On-the-surface installation is more accessible . . . can be extended or relocated easily. Strong steel Wiremold raceways are safe, permanent, easy to wire or rewire . . . better for the customer, better business for the contractor.



TYPICAL FITTINGS

No. 5728 Utility Box

No. 5735 Distribution Box

No. 1086 Adjustable Offset Connector

No. 5727 Plug Receptacle 15A, 125V; 10A, 250V

WIREMOLD RACEWAYS AND FITTINGS CONFORM TO IMSA SPECIFICATION NO. 105; FEDERAL SPECIFICATION W-R-32. LISTED BY UNDERWRITERS' LABORATORIES, INC.

Catalog and wiring guide . . . bulletins . . . engineering data sheets . . . free on request to the Wiremold Company.

WIREMOLD CAN HELP YOU PRODUCE FOR WAR . . . WHILE YOU PLAN FOR PEACE!

KNOW YOUR

WIREMOLD

AND YOU KNOW THE ANSWERS

THE WIREMOLD COMPANY HARTFORD 10, CONN.

A NEW Westinghouse

The increased use of instant starting ballasts for 40 watt lamps has developed the need for a lamp which will operate satisfactorily on such ballasts. Westinghouse engineers have now perfected a lamp for this purpose.

This new 40 watt white Westinghouse Mazda Fluorescent lamp will have the same rated life when operated on the instant starting ballast that the standard 40 watt Westinghouse Mazda Fluorescent lamp now has when used with conventional ballasts and starters.

It should be ordered only for use on the instant starting ballast and should not be ordered for use in installations having preheat starting. It will be specially marked and will have the same list price as the standard lamp. Limited quantities of these lamps will be available for shipment on and after May 1, 1944.

New developments such as this typify the skill and resourcefulness of Westinghouse engineers. Based on a persistent policy of product improvement, they are the reason why the name "Westinghouse" has come to mean leadership in lighting.

They are the reason, too, why it pays to recommend Westinghouse Mazda Lamps for every lighting application and installation. Westinghouse Elec. & Mfg. Co., Bloomfield, N. J. *Plants in 25 cities . . . offices everywhere.*

Westinghouse

MAZDA LAMPS FOR SEE-ABILITY

FLUORESCENT LAMP

LET'S ALL KEEP BACKING THE ATTACK... BUY MORE WAR BONDS

Explosion-proof
Weather-tight *Water-tight*
RECEPTACLES *and* PLUGS

Since 1902
the
standard for
CHEMICAL
FOOD
MARINE
POWDER
REFINERY
TEXTILE
and all outside installations

"Fairweather" electrical engineers and contractors did not contribute materially to winning the war.

But the legion of electrical men who foresaw every eventuality of vapor, moisture, dust, water, explosion, and broken connections are watching the operation of their plants, outdoor jobs, ships and commercial buildings with just satisfaction.

That Russell & Stoll anticipated the requirements is evidenced by the volume of war business received and by the 300 page Catalog No. 90 which is in the hands of leading jobbers and contractors everywhere.

From receptacles to Ever-Lok connectors and lighting fixtures, and circuit breakers to panel boards, you will find an R & S fixture or fitting that will exactly meet your requirements.

If you are working on a postwar job or designing an electrically operated machine for a hazardous location, we would be glad to talk it over now.

RUSSELL & STOLL COMPANY

125 BARCLAY STREET • NEW YORK 7, N. Y.

EXPLOSION-PROOF, WATER-TIGHT, AND EVER-LOK

7

A BULLDOG MESSAGE FOR WHOLESALERS

This reproduction of a current industrial magazine advertisement contains valuable information for wholesalers and their salesmen

NO OTHER SWITCH HAS THESE TWO GREAT FEATURES

INSIDE—*note the trim compactness and ample wiring space.*

OUTSIDE — *modernly streamlined cover with rocker design handle.*

All BullDog Safety Switches have two important (and exclusive) advantages which assure more positive action, greater safety and longer life.

First, the Vacu-Break principle gives arcs no space in which to breathe — snuffs them out before they start.

Second, the Clampmatic mechanism — bolt-tight in the ON position—makes possible an easy, quick release when thrown OFF. This is accomplished by the energy stored in the clamp springs which help the handle operating spring "break" the contacts with almost automatic ease.

Send for descriptive Bulletin No. 415, giving complete information.

BULLDOG
ELECTRIC PRODUCTS CO.

BOX 177, R. PK. ANNEX
DETROIT 32, MICHIGAN
BullDog Electric Products of Canada, Ltd., Toronto, Ont.

Field Engineering Offices in All Principal Cities

ALSO MANUFACTURERS OF

SAFTOFUSE PANELBOARDS • SWITCHBOARDS • CIRCUIT MASTER BREAKERS • BUSTRIBUTION DUCT, *for "plug-in" power* **• UNIVERSAL TROL-E-DUCT,** *for flexible lighting* **• INDUSTRIAL TROL-E-DUCT,** *for movable "loads."*

BUY MORE WAR BONDS

THE SCENE: Lighting Conference

THE VOTE: MILLER Fluorescent–Unanimous

Lighting meetings like this have happened many times in the past in many a busy war plant—will happen many more times during crucial 1944. Inevitably the vote goes, hands down, to MILLER 50 & 100 FOOT CANDLERS, and here's why . . .

PLANT MANAGER—"We still have stiff production quotas to meet—with greener help. MILLER 50 & 100 FOOT CANDLERS will give us 30, 40, 50 or more foot candles of illumination—and that's what we need for better, faster production."

WORKER—"Sounds good to me. I've worked under MILLER fluorescent and I know I've worked better and felt better simply because I could see what I was doing at all times clearly and sharply."

MAINTENANCE MAN — "Those lightweight Masonite reflectors MILLER uses will take plenty of punishment, and yet a girl can handle their cleaning. I like the exposed ballasts because they mean cooler operation. And I go big for that MILLER Patented Safety Lamp Lock that keeps lamps from falling."

ELECTRICAL CONTRACTOR — "I can handle the installation of MILLER equipment in less time, shorthanded as I am for trained help. Units go together easily into self-aligned runs. Hanging is simplified. I've had MILLER jobs result in installation savings of 30 to 50% to owners."

ARCHITECT — "I've specified MILLER Continuous Wireway Fluorescent Lighting Systems on both new construction and modernization projects. The beauty of it is its flexibility. Whole sections, or even the entire system can readily be moved to other parts of the plant."

UTILITY ENGINEER — "From power source right through to controls, the whole MILLER setup saves considerable critical material—and provides an adequate, modern lighting system . . . something we utility guys have been preaching for years."

OWNER — "You fellows hit both my pocketbook and my patriotism. I say let's specify MILLER 50 & 100 FOOT CANDLERS—and let's get a MILLER field man in pronto to talk turkey."

THE MILLER COMPANY • MERIDEN, CONNECTICUT

ILLUMINATING DIVISION
Fluorescent, Incandescent
Mercury Lighting Equipment

OIL GOODS DIVISION
Domestic Oil Burners
and Liquid Fuel Devices

ROLLING MILL DIVISION
Phosphor Bronze and Brass
in Sheets, Strips and Rolls

WAR CONTRACTS DIVISION
War Materiel

MILLER
SINCE 1844

. . . what the
JOBBER
SALESMAN
Likes to Sell

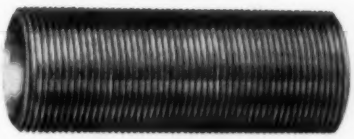
. . . and the
ELECTRICAL
CONTRACTOR
Likes to Buy

CONDUIT
COUPLINGS

CONDUIT
ELBOWS
90° and 45°

CONDUIT GOOSENECKS

CONDUIT NIPPLES



CONDUIT RUNNING
THREAD PIPE

CONDUIT
WALLPLATES

WHY?

Because all Conduit pipe products are made in full accordance with *Conduit Specifications* which assure proper gauging, careful chamfering for protection of starting threads, perfect reaming, rigid inspection and labeling. The result . . . from jobber salesman to electrical contractor, everybody's happier because of these easier to stock, easier to handle, easier to install products.

REPRESENTATIVES
IN
PRINCIPAL CITIES

Conduit PIPE PRODUCTS CO.
COLUMBUS, OHIO

PIPE COUPLINGS PIPE NIPPLES ELBOWS, 90° AND 45°
RUNNING THREAD PIPE GOOSENECKS WALLPLATES

"RACO is one of the Best lines I ever had!"

Many successful wholesalers and their salesmen rate the Raco • All-Steel • Line "tops." They know from experience that they can sell it with full confidence.

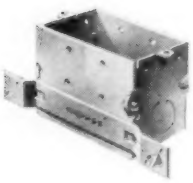
The completeness of the line, developed through more than 27 years of engineering, which keeps pace with all wiring trends, means faster turnover—more profit—and the assurance of repeat business.

Raco • All-Steel • Products are designed for all types of jobs from large projects to small replacement, maintenance and repair work. They have won the acceptance of architects and builders—the preference of leading contractors.

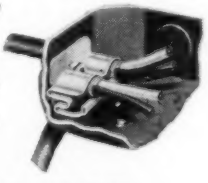
This clean, trade-marked and attractively packaged line is sold *exclusively through wholesalers.*

Remember . . . you can always rely on the Raco • All-Steel • Line.

• • •



At left—RMO switch box. Specially designed for use with many types of wall board. Right—DO-21-N3 outlet box. One of the newer boxes with protective 2-way clamp for non-metallic cables.



These are but two of the many dependable products in the Raco • All-Steel • Line.

Distributed by

ALL-STEEL-EQUIP COMPANY, INC.

304 Griffith Avenue **Aurora, Illinois**

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Mitchell Lighting Fixtures for War Industry

Mitchell Fluorescent Fixtures provide simpler, more efficient, more flexible lighting, at low cost, for work areas in war industries. "MITCHELITE" fixtures for plant lighting. MITCHELL "U.R.C." for office and drafting rooms.

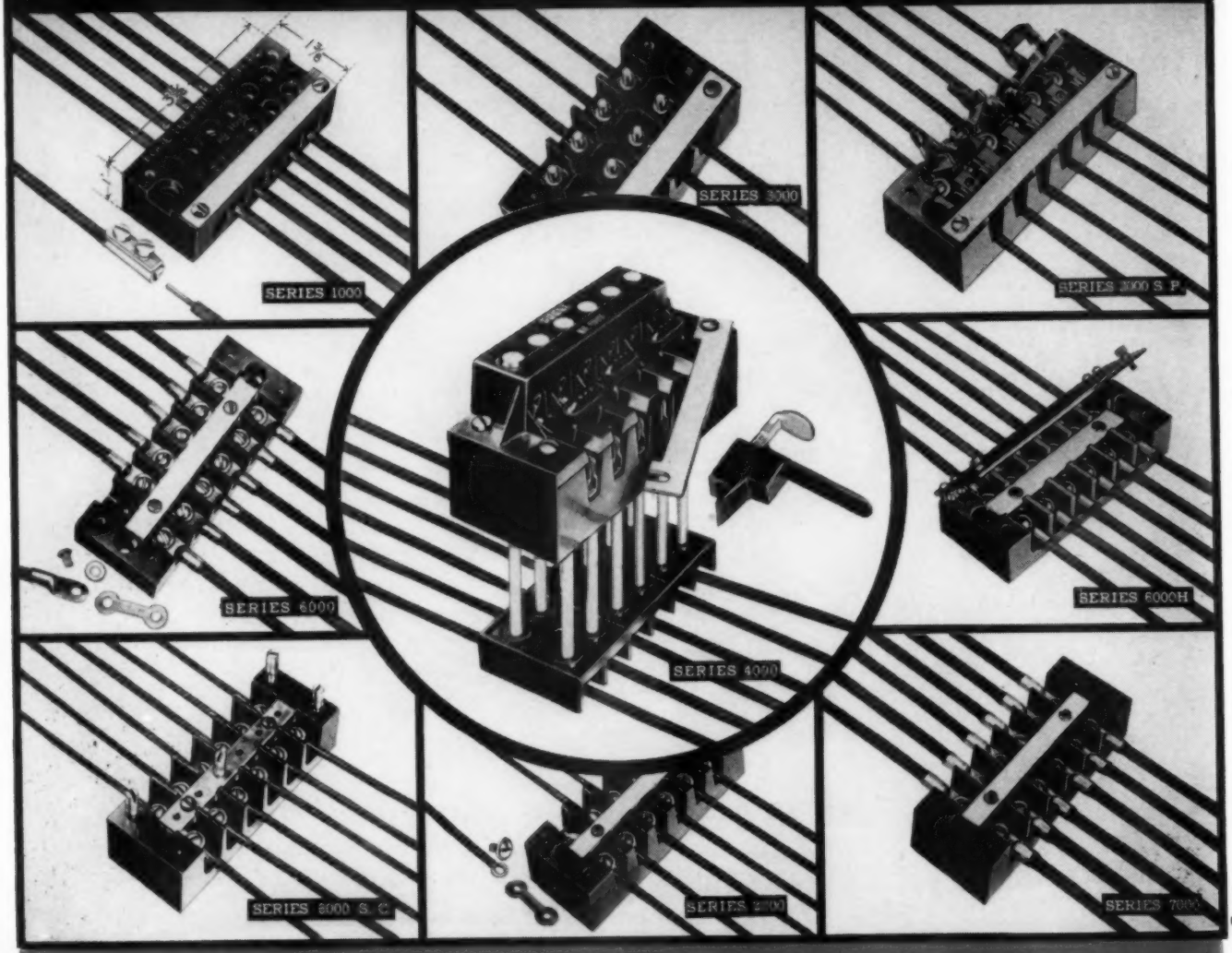
MITCHELL Manufacturing Company
2525 Clybourn Avenue, Chicago 14, Illinois

MITCHELL

BACK THE ATTACK
BUY WAR BONDS

944

Choose from 10
BURKE TERMINAL BLOCKS



Wherever two or more wires come together there is an application for Burke Controlead Terminal Blocks. They are standardized in 10 types to meet all kinds of applications. Additional moulding capacity on a 24-hour basis permits faster deliveries to meet urgent war demands. Consult with Burke engineers for correct selection of these high quality blocks for your needs.

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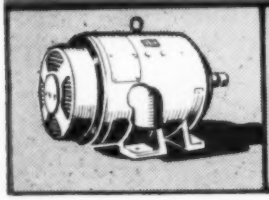

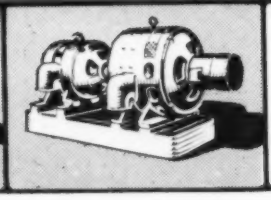

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A. C. Equipment to 1500 H. P. and 1000 K. W.
M-G Sets to 1000 K. W.
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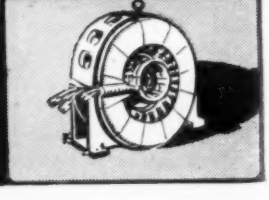

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SYNTHOL WIRES AND CABLES

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SMALL DIAMETER BUILDING WIRE

is inherently moisture-resistant, oil, chemical and sun proof. It has the smallest outside diameter for a given copper size, permitting more conductors in a given size of conduit, is easy to fish, clean-stripping, SAFE and PERMANENT.

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"LIGHT LINE" TO VICTORY

• Long rows of industrial fluorescent units—flooding large factory areas with well-diffused light—help speed victory because they enable the war worker to see better and therefore produce more with less scrap.

• Today, of course, metal fixtures are not available for fluorescent lighting. That's why so many manufacturers are using the new, non-metallic Masonite* Reflector Shapes.

• Yes, manufacturers are finding that reflectors made of this rugged but surprisingly light-weight material have many very definite advantages. They're extremely easy to handle—cut shipping costs. They can be installed quickly and serviced simply. They will not rust—even in high humidity locations such as laundries and over plating tanks!

• You'll want to know more about the properties of Masonite Reflector Shapes because you'll be seeing more and more of them—in war factory today, in post-war factory tomorrow. For complete details, please write Masonite Corporation, 111 W. Washington St., Chicago 2, Illinois.

MASONITE CORPORATION

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General Electric Completes
Flamenol Building Wire Line with

TYPE SNW

FLAMENOL* BUILDING WIRE

(Small Diameter)

FOR WET LOCATIONS

G-E distributors can supply their customers with thermoplastic insulated Flamenol Building Wire for all new wiring and rewiring purposes: Type SNW Flamenol wire for use in wet locations, standard Type SN Flamenol wire for use in dry locations.

Type SN Flamenol wire is well known. It was developed in the 1930's and has proved its worth on hundreds of installations.

Type SNW Flamenol wire has all of the desirable features of Type SN Flamenol wire and in addition its insulation has low moisture absorption. It is approved by the Underwriters' as listed in the 1940 N.E.C., in sizes 14 to 4/0 inclusive, for use in raceways in wet locations, viz:

1. Underground
2. In concrete slabs or masonry in direct contact with the earth
3. In wet locations
4. Where the condensation and accumulation of moisture within the raceway is likely to occur.

Flamenol Building Wires, Types both SNW and SN have small diameter, a smooth finish and are easy to install. Their insulation has long life, is high in dielectric and mechanical strength and is resistant to oils, acids and alkalies. Wire and Cable Division, Appliance and Merchandise Department, General Electric Company, Bridgeport, Conn.

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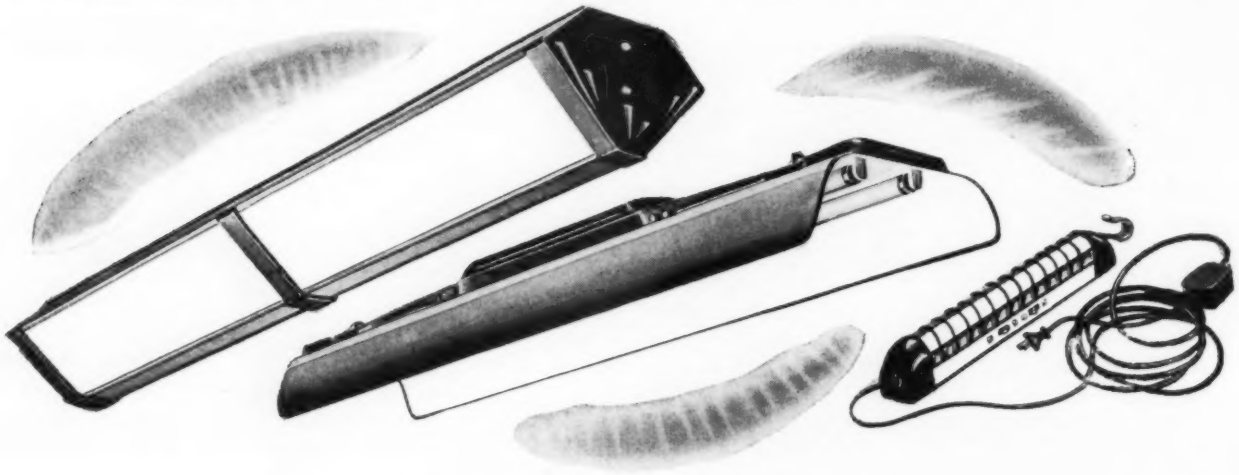
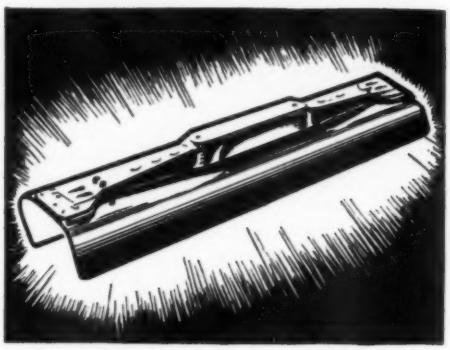


in COMPLETE PACKAGES of LIGHT

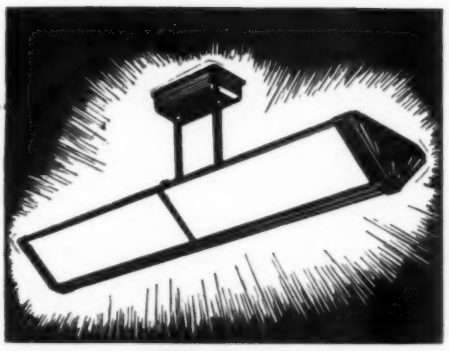
Complete Packages of INDUSTRIAL LIGHT

Sylvania's HF-100R, HF-150R and HF-235R Industrial Fixtures include Sylvania Fluorescent Lamps and Starters. Pre-tested. Wired and ready for immediate installation. Two 40-watt lamps are supplied in HF-100R and three in HF-150R, while HF-235R takes two 100-watt lamps. In each size, *one* standard fixture meets *all* industrial requirements. Sylvania engineering gives easier installation, speedier maintenance, adaptability for either individual or continuous row mounting, surface or pendant.

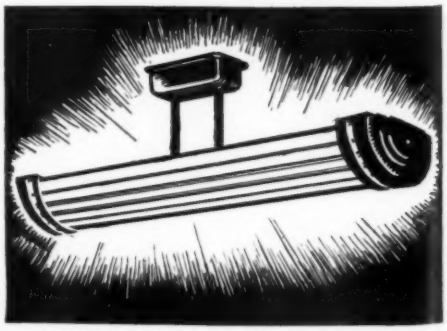


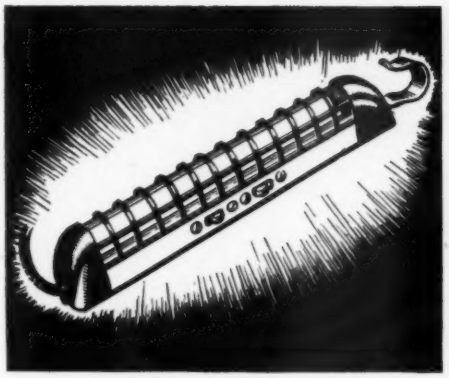
Complete Packages of COMMERCIAL LIGHT

Sylvania's C-200R and C-201R Commercial Fixtures come with four 40-watt Sylvania Fluorescent Lamps, Starters, and high-power-factor Dua-Lamp Auxiliaries. Completely wired and ready for installation. Easy maintenance. Available in both shielded and unshielded models for surface or pendant mounting. Ideal for factory offices, drafting rooms, schools, hospitals, and other institutions requiring the best in modern lighting.



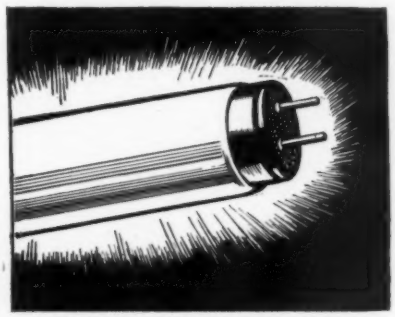
C-201R Shielded
C-200R Unshielded





Complete Package of PORTABLE LIGHT

P-7 — the Sylvania Fluorescent Extension Cord Lamp — makes portable, for the first time, the best working light known. This handy work and inspection light, originally developed for a bomber-parts manufacturer, is compact — 10-1/4 x 1-3/16 x 1-7/8 inches. Goes anywhere the hand can reach in hard-to-get-at places. Cool light from its 6-watt Sylvania Fluorescent Lamp is safer and more efficient to use. It is equipped with a steel guard to prevent lamp breakage — a handy hook to leave both hands free to work. Operates on 110-125 volts, 60-cycle, AC only. Total wattage is only 8 watts.



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Specify Replacements
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LIGHTING PIONEER
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Leading Manufacturer of Fixtures in the Fluorescent Field

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For Industry THE FLUORESCENT FIXTURE OF THE FUTURE	☐
8 WAYS TO SOLVE YOUR LIGHTING PROBLEMS	☐
A Fluorescent Unit That GOES PLACES P-7	☐

Any other Fluorescent Data?

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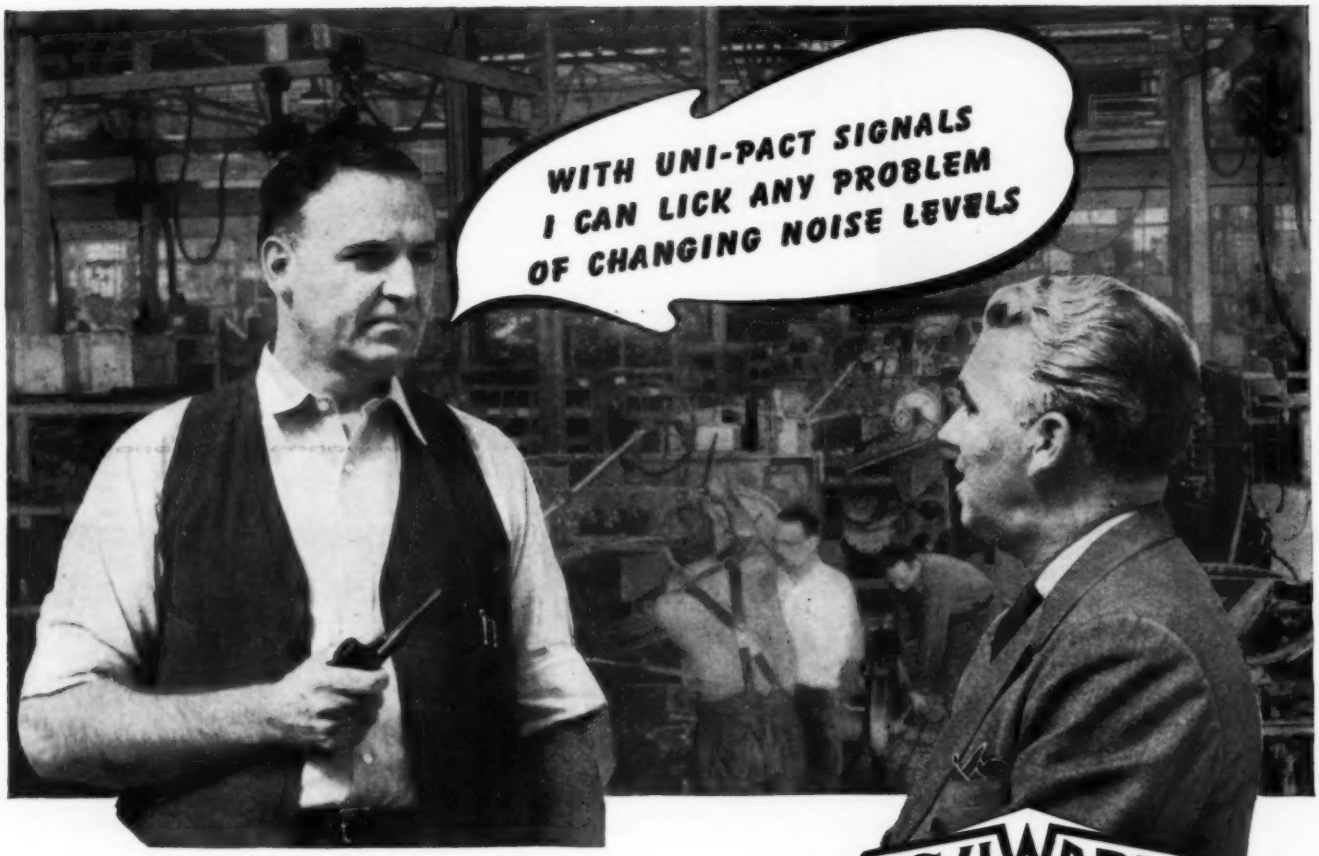

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AUDIBLE ELECTRIC SIGNALS

Maximum Flexibility at no added cost

with the famous

SCHWARZE-FARADAY UNI-PACT DESIGN

You'll find appreciation among your trade for the greatly added flexibility made possible by the famous Schwarze-Faraday UNI-PACT feature. It simplifies plant signal problems, while saving time, maintenance and installation costs. One outlet, with a single adapter-plate allows the user to meet changing plant conditions by merely plugging in Bell, Horn or Kodaire, as required.

The Schwarze-Faraday Complete
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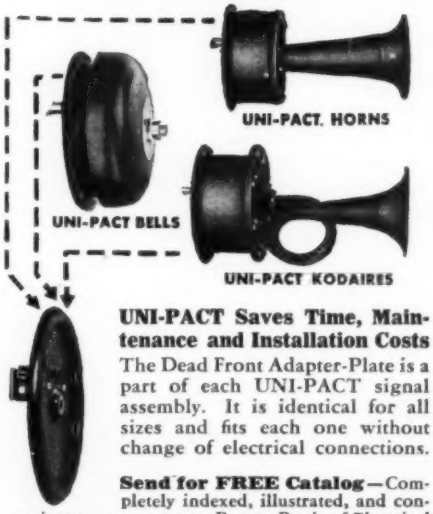
Included are Horns, Bells, Buzzers, Air-Trumpets, Kodaires and Chimes, all durable, dependable, and economical. Our factory-trained engineers will gladly assist you in designing installations in accordance with any plant's requirements.

They all fit the same adapter plate



UNI-PACT Saves Time, Maintenance and Installation Costs
The Dead Front Adapter-Plate is a part of each UNI-PACT signal assembly. It is identical for all sizes and fits each one without change of electrical connections.

Send for FREE Catalog—Completely indexed, illustrated, and convenient to use, our new Buyers Book of Electrical Signals will prove an invaluable reference guide.

SCHWARZE ELECTRIC COMPANY
ADRIAN, MICHIGAN

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Pioneers in industrial lighting for 21 years, members of RLM Standards Institute have worked together to give deep significance to the RLM Label. It has come to symbolize (1) Engineered Lighting, (2) Economy through More Light At No Extra Cost, (3) Low Maintenance Cost. It is instantly recognized by buyers that industrial lighting fixtures bearing the RLM Label provide these vital advantages.

The RLM Standards Institute does not manufacture lighting equipment. It is a non-profit organization. It operates to develop and promulgate standard specifications for the efficient performance of industrial lighting equipment. Official Standard of RLM Specifications . . . available through manufacturers utilizing RLM inspection and certification, or direct from RLM Standards Institute . . . provide dependable guidance on vital construction and performance factors for both Incandescent and Fluorescent Lighting Units. They are trustworthy guides to *efficient* and *effective* industrial lighting.

The Letters RLM Stand for Reflector and Lighting Equipment Manufacturers

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A DIVISION OF CONSOLIDATED ELECTRIC LAMP CO.

Samuel J. Shaw, Pittsburgh Graybar Salesman Says It Is Just a Matter of Meeting Needs—

"If the proper Teletalk installation is made and recommended, the selling is never hard. For a capable engineer, there is no extra engineering needed, for Teletalk equipment is simple and fits the needs of every customer's demands." This experience of Samuel J. Shaw, salesman for the Graybar Electric Company, Pittsburgh, Pa., is indicative of the profit-making opportunities for salesmen everywhere in introducing Teletalk Amplified Intercommunication Systems to industrial plants, factories . . . every place where instant contact with key individuals is important.

Shaw pays a high compliment to Teletalk sales literature . . . says it gives all the answers and that the salesman who reads it thoroughly will never be stumped for an answer. He points out that Teletalk is a quality product, not built down to a price, but investigation by his customer's engineers easily prove it most desirable.

Alert wholesaler's salesmen can profit by the long experience of Mr. Shaw and hundreds of other progressive salesmen who have found almost a universal market for Teletalk. It is available in sizes to fit the large or small organization . . . is quickly and easily installed . . . pays for itself in time and energy savings in just a few months. Write us for full information.

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Buy *Extra* War Bonds

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*C. P. KOB	Pensacola 3502	6525 N. Spokane Ave. Chicago 30, Illinois
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xW. E. WILSON	Chestnut Hill 5390	10 W. Gowan Ave., Mt. Airy, Philadelphia 19, Pa.
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Located accessible to every part of the country, the Jefferson corps of experienced sales engineers is immediately available at all times.

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The long established acceptance for Jefferson Electric Transformers, Ballasts, Jefferson Union Fuses—is the result of reliable performance from one end of the country to the other for more than a quarter of a century to meet your particular requirements.

JEFFERSON ELECTRIC

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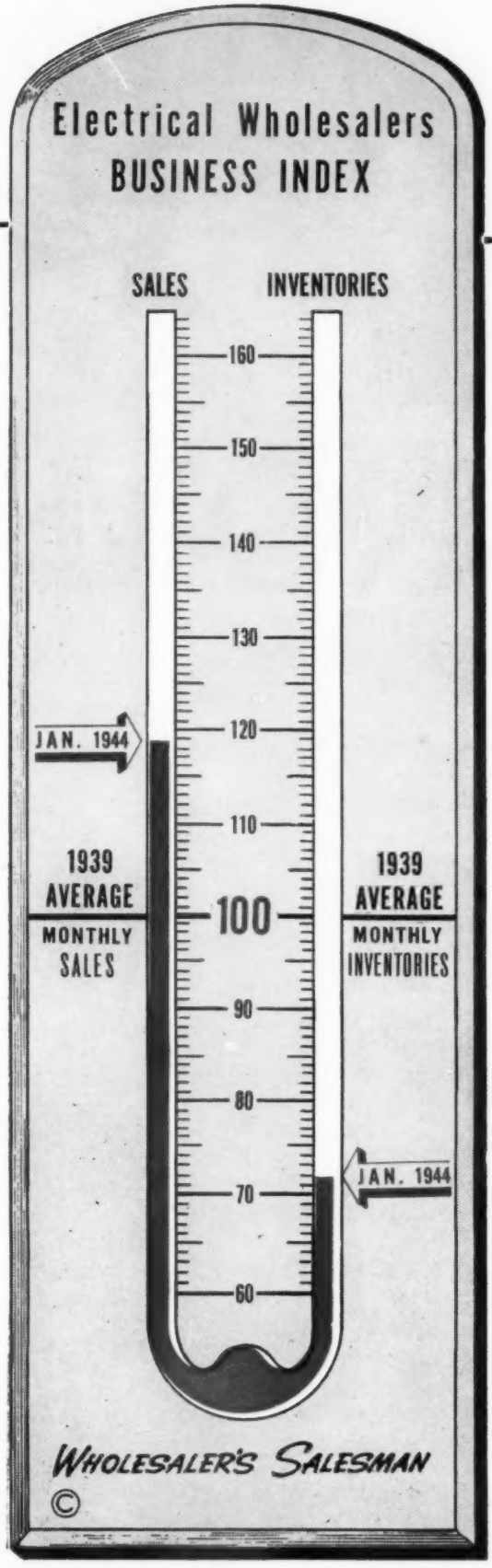


SOURCE The figures we use as basis for these monthly comparisons of performance in the electrical wholesaling field are collected and compiled by the Bureau of the Census of the U. S. Department of Commerce.

Business Index
For the Month of January, 1944

SALES Sales of electrical goods through wholesalers in January reflected the general slump reported by most businesses that month, registered 118 percent of the 1939 average monthly sales volume. This was 6 points below the level of sales reported in December.

However, a glance at the indices of the last three years shows that a decided slump has been reported in January of each year, and that the decline registered this year was less than that in January 1943, 1942 or 1941. Apparently the tendency to this war-time first-of-the-year slump in wholesalers' sales is lessening.

If the sales of electrical goods through wholesalers for the next few months follows a trend similar to that of the last three years, then a gradual month-to-month increase in sales volume may be expected to show in the indices for February and March, with the peak of the year showing between April and June.

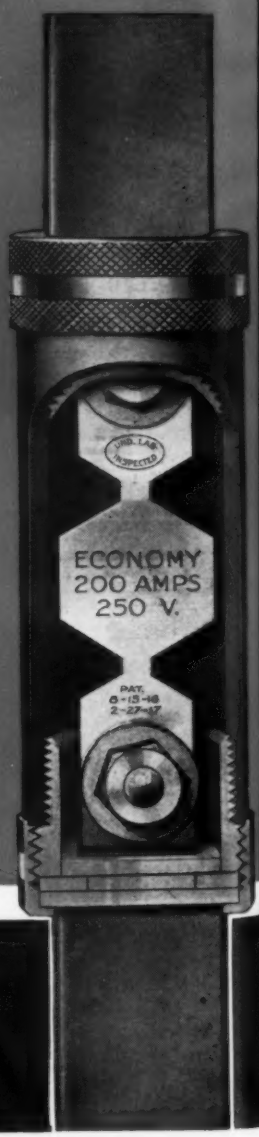
INVENTORIES The flow of electrical goods in January from manufacturers to wholesalers reached a somewhat encouraging level, registering on the index at 71 percent of the 1939 average monthly inventories. This represents a gain of 6 points over the figure of the previous month. Thus it appears that the stocks of wholesalers returned to that level which has been held throughout most of the months of 1943. This level, which has been termed the "irreducible minimum" for war-time operation, has fluctuated within the rather small range of about 5 points above to 5 points below the year's average.

COLLECTIONS Collections throughout the country were reported at an average of 77 percent. This was a gain of 2 points above the collection figure reported for January 1943, but was 10 points below the revised collection figure established in December 1943. Accounts receivable were up 1 percent over the previous month, but were 19 percent below January 1943.

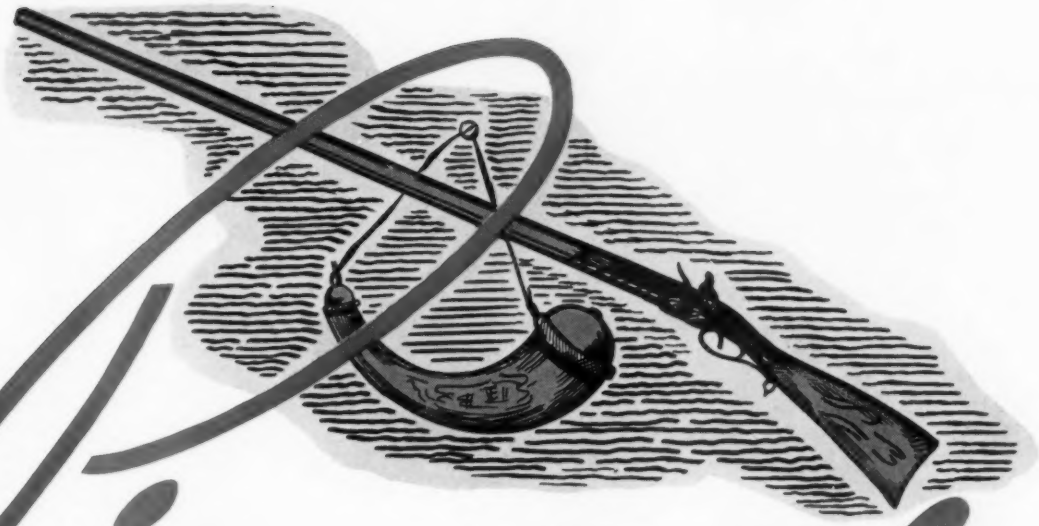
UNWAVERING FAITH IN THE *Wholesaler*

...ECONOMY.

As the Wholesalers position continues to advance in importance ECONOMY keeps step by cooperating fully in supplying Fuses designed and developed to give the very best service with resultant good earnings. When the war is won and ECONOMY Fuses can again be sold, the position of our Distributors will be more important than ever because more engineers and maintenance men will have learned the advantage of standardizing on ECONOMY FUSES.



"Economy Fuses Since 1911"



Pioneer

IN FUSE DESIGN
LEADERSHIP..

ECONOMY pioneered in the development of the Renewable Fuse . . . its great convenience and economy led to its adoption by the electrical industry and its listing as standard by Underwriters' Laboratories. The "drop out" Renewal Link is the distinguishing feature which is responsible for the tremendous popularity of ECONOMY Renewable Fuses. These fuses cut operating costs—they are simple and easy to use, and save time and money. They are made for every electrical circuit.

ECONOMY	Renewable Cartridge Fuses and "drop out" Renewal Link
CLEARSITE	Plug Fuses—shows when blown
ARKLESS	Non-Renewable Mechanical Indicating Cartridge Fuses
ECO	Non-Renewable—Non-Indicating Cartridge Fuses

ECONOMY FUSE AND MANUFACTURING CO.
2717 NORTH GREENVIEW AVENUE CHICAGO 14, ILLINOIS

WHOLESALER'S SALESMAN BUSINESS INDEX

REGIONAL ANALYSIS

JANUARY, 1944

ALTHOUGH each of the nine geographical regions showed the effects of the January slump in sales, the degree to which each felt it varied up to 20 points between the high and low regions.

New England, with sales at 82 percent of the previous month's level, continued to be tops in regional performance as it has been for many of the recent months. Region 7, the West South Central states, more than the other regions, showed the effect of the general sales decline, with its wholesalers reporting sales at 62 percent of December.

It is important to note that the slump in sales was less than that reported in the first month of previous years. In this connection it is important to note that four of the nine regions reported substantial gains in sales over January 1943, and that two of the other regions were within five points of equalling the sales figures of the same month of last year.

Region 4, the West North Central states, and region 6, the East South Central states, reported sales volumes at 118 and 120 percent, respectively, of the January 1943 level. This seems to indicate that those states, which were among the first to feel a decline when new Army camp and war plant construction ended last year, have found maintenance and other business which has brought them back to a fairly high level of monthly sales.

Delivery of goods to wholesalers was quite evenly balanced in January, only regions 1 and 6 show any considerable deviation from the average, when compared to the previous month.

Region 9, the Pacific states, reported that inventories of wholesalers in those states were at 105 percent of the January 1943 level. At the same time, wholesalers' stocks in the New England states were reported at 68 percent of the January, 1943, level.

It is probable that these large inventories in the Pacific states are the result of wholesalers being prepared to meet the needs of the greatly expanded plant facilities in those states, thus pushing the wholesalers index of inventories for that region far above the level of what was once the peacetime requirement in that area. As a contrast in the New England states where war industry is more the result of conversion rather than expansion the war plant requirements are remaining nearer the level of peacetime performance.

Figures in this table apply to the geographic divisions as outlined and numbered in red ink on map above

SALES January, 1944 Compared in % to		Trading Region (See Map)	INVENTORIES January, 1944 Compared in % to	
December 1943	January 1943		December 1943	January 1943
82	108	1	81	68
75	95	2	97	71
69	104	3	102	89
81	118	4	102	82
77	76	5	105	90
73	120	6	108	81
62	81	7	100	89
73	95	8	97	73
75	87	9	99	105
74	**94**	For **U. S. A.**	**99**	**85**

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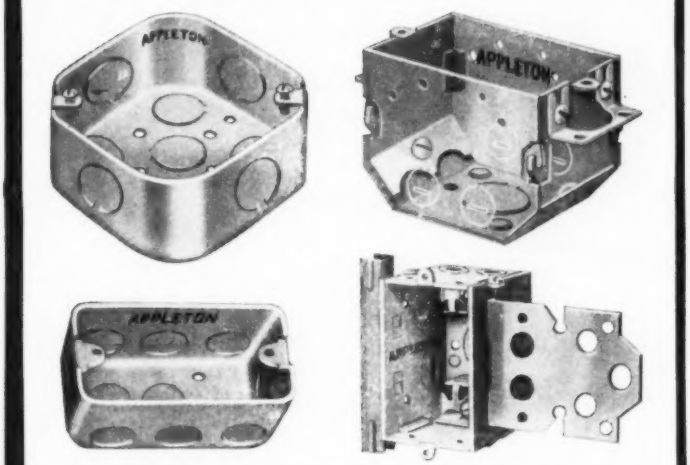
SWITCH AND OUTLET BOXES AND COVERS

Every Required Size and Shape



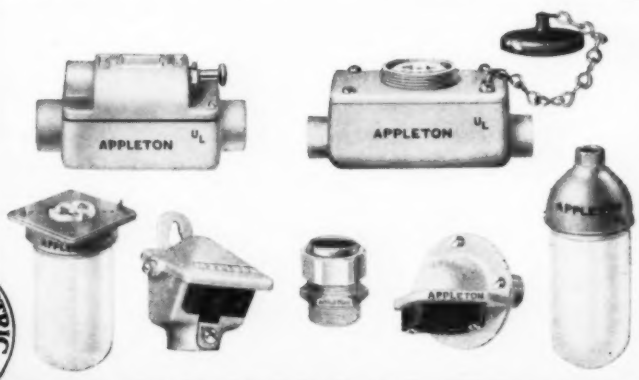
COUPLINGS AND CONNECTORS

Threaded and No-Thread for Heavy-Wall or Thin-Wall Conduit—or Cable

When your customers specify Appleton conduit fittings, boxes, and lighting fixtures, they're putting quality into the job, building "for keeps" . . . *and* they're guarding against loss of time and disappointment resulting from delayed delivery. Appleton manufacturing and shipping facilities are unexcelled. Whatever Appleton fittings you sell—from the simplest to the most unusual; a carton or a carload—your customer will get exactly what he wants and needs, and he'll get it when he wants it!

SPECIAL "REA" CONDUIT FITTINGS

For Dependable, Weather-Tight Farm Wiring



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CONDUIT FITTINGS • OUTLET AND SWITCH BOXES • EXPLOSION-PROOF FITTINGS • REELITES

Take a Tip

FROM THE MAN WHO KNOWS -

● TODAY, when installations must stand up as never before, you will find more and more veteran electricians turning to STIXWEL.

● STIXWEL gives complete satisfaction to wholesalers and their customers.

Clifton

MANUFACTURING CO. Inc.

BOSTON 26, MASS.

Disposal of Government War Plants and Equipment

In the last four years, the Federal Government has spent over fifteen billion dollars on war plants—two-and-one-half times as much as was spent by private investors.

Of this fifteen-billion-dollar government investment, about one-third has gone into facilities for the manufacture of aircraft and for ship construction and repair; another third has gone into plants for production of combat ordnance; and the remaining third has gone into a variety of facilities for making synthetic rubber, metal products, machinery, and miscellaneous equipment.

Most of these plants are in industries that are expanded far beyond peacetime requirements. Furthermore, their convertibility to other civilian uses will, in many cases, be complicated by their specialized equipment and layout, by their tremendous size, and by their uneconomic location. At the moment, it looks as if roughly one-third of the government-owned plants and equipment can be converted fairly readily to peacetime operation, and will, therefore, be easily disposable to private enterprise.

The discovery of unsuspected uses for war plants and equipment may well raise the disposable proportion to one-half or more. The government, at the end of the war, may own about one-eighth of the commercially-usable industrial capacity of the country. It will be by far the largest owner of machine tools; it will own enormous aluminum capacity, magnesium capacity, many miles of pipe lines, and more ships than the entire private shipping industry.

What the government does with its war plants will have a profound effect on the free enterprise system and on all workers, employers, investors, and consumers who have a part in that system. If this problem is handled badly, we may find ourselves enmeshed in a trend toward monopoly and government operation of industry. If the problem is handled well, we shall have taken a big step toward freedom of action in a competitive society, toward full opportunities for business enterprise, toward well-paid productive jobs for workers, and toward a higher standard of living for us all.

Recently, three important events have signalled encouragement. They are the report of Senator George's Committee, the Baruch report, and the report of Senator Truman's Committee. These reports are noteworthy for their competent sizing up of a complex problem, for their recognition of the major responsibility of government in making a successful transition to peace, for their insistence on wise policy and good administration, and for their genuine concern that our productive powers be given full opportunity in a free private enterprise system. These reports agree on basic principles and many specific lines of action. There are, however, important areas of policy formation, organization, and procedure—especially in regard to plant disposal—which remain to be blue-printed.

In formulating the policies and practices to be followed in dealing with government war plants, our major goal must, of course, be a high level of production and employment in private business after the war.

Government operation in competition with private employers and privately-employed workers will not be desirable because it will make investment unattractive to private capital and will limit opportunities for private employment. On the other hand, sales to private buyers which result in increasing the concentration of industry will also be undesirable. We must use this opportunity to strengthen the competitive enterprise system and to move away from, not toward, the concentration of economic power in either public or private agencies.

To accomplish these objectives, a program of action such as follows will be necessary:

1. An adequate reconversion organization will be needed in the government, but its powers and responsibilities should carefully be defined by Congress. Fortunately, an able Administrator of Surplus War Property already has been appointed. It will be essential for him to work in closest cooperation with Congress and with the Armed Forces and other executive agencies. The Office of War Mobilization, and ultimately the President, must be responsible for seeing that the Surplus War Property Administration is not sidetracked by the operating agencies and is not dominated by their sheer size. Funds must be supplied generously to the Surplus War Property Administrator, so that he can set up an organization adequate to cope with this huge and complex job. Business, too, must be generous in loaning top-flight executives for postwar government service.

2. One of the first acts of the Surplus War Property Administration will have to be to assemble a complete inventory of government war plants and equipment, to make possible the planning and control of the disposal process, and to form the basis of catalogues of property available for sale.

3. Cooperation between the executive and legislative branches of the government will be needed to develop at least tentative plans with respect to matters of public policy which are of special importance to a successful transition to peace. Among these matters are the size of the military establishment to be maintained in time of peace, the stand-by facilities and reserves of materiél necessary for our security in case of future war, and our policy regarding import and production of synthetic rubber and other critical and strategic materials.

4. The Surplus War Property Administrator should

obtain from the Armed Forces, acting under congressional directives, specification of those plants which are needed to supply our peacetime Army and Navy and to provide the essential reserve capacity in case of war.

5. The Surplus War Property Administrator should select certain war plants as depots in which to store the huge surpluses of inventories and equipment which will have to be removed from private and government-owned factories in order to make possible their conversion to civilian use.

6. Those plants which are not desired by the Army or the Navy, which are not needed for storage, and which clearly will be unsuitable for peacetime utilization should be scheduled for dismantling and disposal piecemeal.

7. The two or three billion dollars' worth of government facilities intermingled with private plant should receive attention with a view to early sale, temporary continuance or use under lease, or early removal.

8. The various plants and pieces of equipment available for sale to private business should be classified conveniently, catalogued, and advertised to prospective buyers or lessors. Before the Surplus War Property Administrator offers, for private sale, plants and equipment not desired by the Army or the Navy, he should ascertain whether the plants or equipment are desired by other branches of the government or by public corporations such as the T.V.A.

9. Whenever property can be sold at prices approximating depreciated reproduction cost, that will be by far the best solution. Generous time-payment terms should be offered. In many cases the government may be unable to sell the property for reproduction cost less depreciation, for the simple reason that no one would think of reproducing it. The property may already be partly obsolete or, because of its size, location, or other characteristics, may only be moderately well suited for commercial use. This should not prevent the government from selling it, provided a price which fairly represents the worth of the property can be obtained. The best test of that worth is the price produced by active bidding under favorable market conditions.

10. When property cannot be sold at a fair price, temporary leases with options to buy should be employed to get the facilities into productive use. This should not, however, be done on terms which would cause unfair competition or create clearly excessive capacity in an industry. And the lease must be temporary; it must not be the means to prolong government control or ownership.

11. The government should offer the strongest possible resistance to local groups or industry groups seeking subsidies for continued operation of war properties. Subsidies will burden the Treasury and lead to inefficient use of resources. They will be justified only to maintain facilities needed for national security.

12. The plants and equipment offered for sale and lease should include sufficient quantities in small enough lots to satisfy the demands from small business. The war has tended to concentrate production in larger plants. After the war, we should seek a wider distribution of the government war facilities.

13. Insofar as possible, war buildings and equipment should be offered for sale in units which can be purchased by businesses in peacetime industries. Many of these industries have had to get along during the war without adequate replacement and expansion, and will be ready to buy if they are able to get what they want from the government. This is a particularly desirable market for surplus government property since these industries are, for the most part, not faced with the problems of excess capacity.

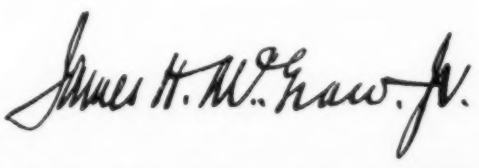
14. Property, such as machinery and other movable equipment, which is in excess of our domestic requirements or is more urgently needed by other countries, should be exported. We shall need, and can take, large supplies of raw materials in return.

15. Property which is not needed by the Armed Forces, which cannot be sold or leased on terms which would be fair to competing plants, which cannot be dismantled and distributed piecemeal, and which cannot be sold abroad, should be scrapped as soon as its non-disposability is apparent. The disposal of war plants should be completed within three to five years.

16. All negotiations for sale or disposal should be matters of open public record. As Mr. Baruch has said, the process must be conducted in a goldfish bowl. This is as much for the protection of business as for the protection of the government.

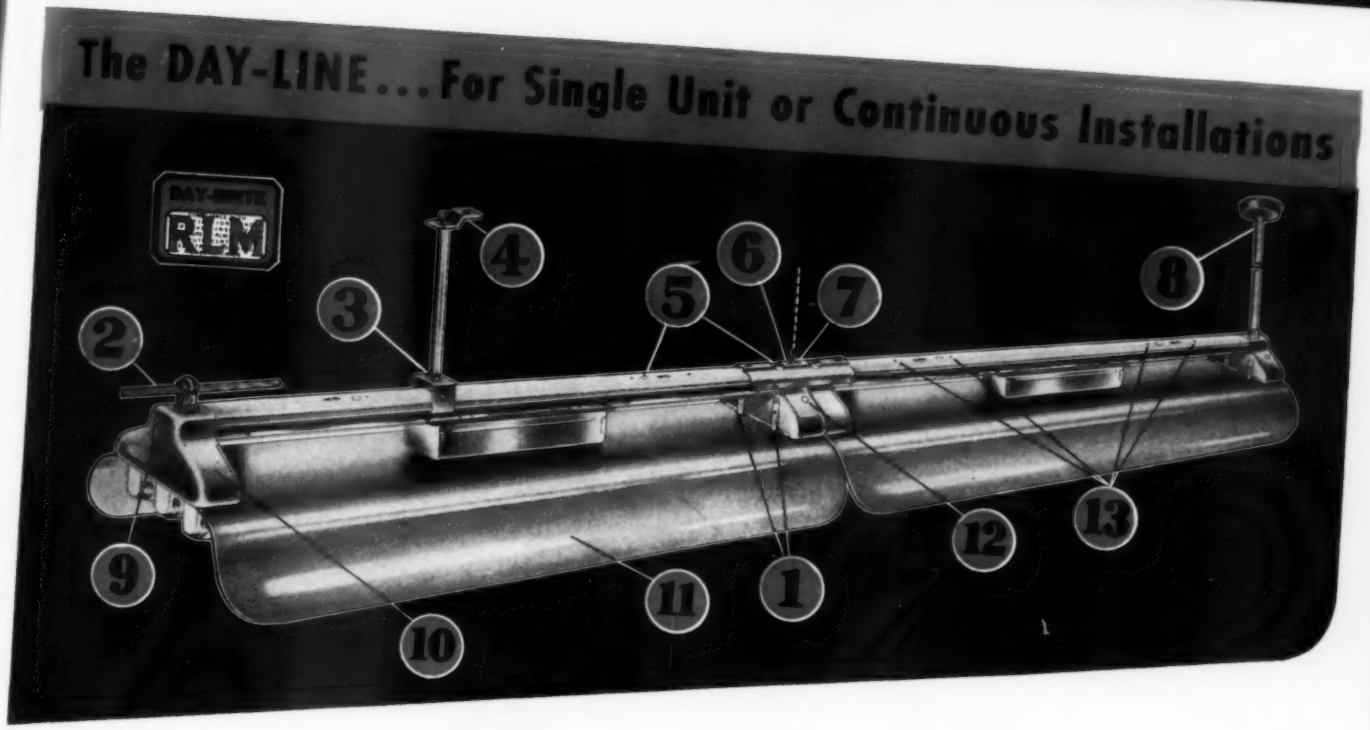
These courses of action do not include everything that must be done, but they do indicate the general lines along which our surplus war plant disposal must proceed if it is to avoid precipitating needless transition unemployment.

The gravest danger of all will be red tape, intergovernmental conflict, and inadequate administration. It would be a great misfortune for the executive and legislative branches to quarrel over details of organization when they agree on the basic principles to be followed in handling the problem. Obviously, the Surplus War Property Administration must cooperate with Congress and look to it for policy guidance. Just as obviously, the disposal problem will involve great difficulties of administration which must not be complicated by congressional interference. We shall need the best we can get in careful policy making, detailed planning, good organization, and courageous action. This is a matter of vital importance to every American. The stakes are too high to tolerate poor administration or petty politics.



President, McGraw-Hill Publishing Company, Inc.

The DAY-LINE... For Single Unit or Continuous Installations



13 POINTS Tell Why You Save

INSTALLATION and MAINTENANCE DOLLARS

1. 5-second on-and-off spring tension clips permit instant release and replacement of entire reflector.
2. ½" K. O. for cable clamp installation direct to fixture.
3. Slide channel clamps for rod or pipe hangers can be located at any point on channel.
4. Swivel type hanger strap is adjustable for pipe or rod alignment.
5. K. O.'s for pipe and cord.
6. Rigid one-piece coupling converts, single units to continuous fixtures.
7. Chain hanger slots in top of channel and in center of coupling.
8. Complete pipe hangers with ceiling canopy and all fittings.
9. Large tear-out in end for through feed.
10. Rigid, one-piece, die-formed end boxes welded to channel assure rigidity and proper alignment of all parts.
11. Non-metallic reflectors (RLM and U. S. Bureau of Standards approved). Reflection factor, 85% or more. Angle of cutoff, 14°.
12. K. O. for switch.
13. Screw holes for direct surface mounting. No couplings needed.

Latest of the many exclusive design features that make Day-Brite the low-maintenance fluorescent fixture is the 5-second *on-and-off reflector.* Slight finger pressure on 2 spring-tension clips at each end of the fixture releases the entire reflector. To replace, merely snap back into rigidly held position. Works fast—permits instant accessibility to the fixture body . . . Long life, continuously high illumination effectiveness is assured by Day-Brite's exclusive "Super-White" baked enamel finish—standard on all non-metallic reflectors. Another low-maintenance feature!

The Day-Line is supplied for single unit mounting or continuous runs—for 2-40 watt, 3-40 watt and 2-100 watt lamps . . . Consult your Day-Brite engineering representative—send for Bulletin F-69.

DAY-BRITE LIGHTING, INCORPORATED
5441 Bulwer Ave. — St. Louis 7, Missouri

DAY-BRITE
The Sign of Quality
Look for this Label

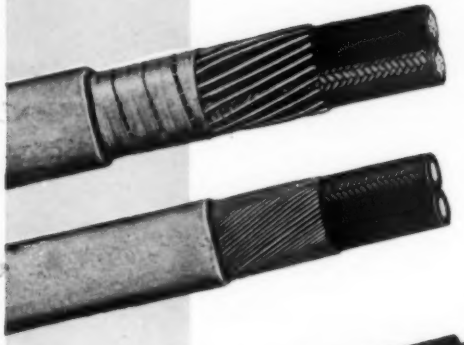
Day Brite
Reg. U. S. Pat. Off.
LIGHTING FIXTURES

75

COMMERCIAL · INDUSTRIAL and SPECIAL DESIGNS *Nationally distributed through all leading electrical supply houses*

HAZARD CABLES

The wide range of cables made by Hazard provide for many problems met by salesmen and contractors in the course of the day's work. Here are examples, designed for specific requirements and built to withstand a number of severe conditions. Hazard research and experience are at your command to help in choosing the right cable for the right job.



HAZARD SERVICE CABLES FOR SERVICE DROPS AND ENTRANCES

Type SE (ABN and UBN) cables, with synthetic rubber insulation, prevent current diversion, eliminate conduit and extra fittings and are architecturally harmonious. Type SD is efficiently designed for service drops. Sizes 12 to 2 incl.; 2 and 3 conductors.

HAZARD PERFORMITE TYPE RH BUILDING WIRE IS SUPER-AGING

This heat-resistant, long-life wire is free stripping and easily installed. Because of its greater carrying capacity, it saves strategic copper. Recommended for branch feeders and general light and interior wiring. All sizes available.

TYPE R HAZACODE WIRE

exceeds all minimum requirements of N. E. Code and is recommended for general interior building wiring; has a sturdy, long-lived, flameproof braid covering, and is readily installed.

TYPE RL HAZACODE LEAD ENCASED

is particularly useful now for damp locations while Type RW is unavailable.

TO THE WHOLESALER'S SALESMEN—
A WELL EARNED TRIBUTE
While others are receiving due credit for their contributions to the war effort on the home front, we wish to express our appreciation of the part played by the wholesaler's salesmen. It has been extensive and valuable. Many a war plant is properly functioning, electrically, today because of the hard work and intelligence of these liaison men between user and manufacturer.

HAZARDEX NON-METALLIC SHEATHED CABLE AND ARMORED CABLE

for interior wiring are both obtainable. These familiar types of cable are made to exacting Hazard quality standards.

TYPE K FABRIC COVERED CORD—an approved cord for ordinary use.

TYPE KK HAZARD SPIRALWEAVE CORD for heavy duty.

HAZARD

TO FILL MANY NEEDS...

HAZAKROME SMALL DIAMETER BUILDING WIRE

AVAILABLE FOR WAR-PURPOSE · MAINTENANCE · REWIRING · NEW INSTALLATIONS

HAZAKROME, an approved synthetic resin insulation, offers many desirable features – particularly non-inflammability and resistance to oil, moisture, ozone and atmospheric conditions.

Consisting only of copper and a thin, but strong, layer of insulation, HAZAKROME wires are easier to handle, splice and connect than Type R wire. HAZAKROME is particularly useful for rewiring jobs, where its small diameter increases the capacity of existing conduit by as much as 2 or 3 times – thus eliminating the expense of conduit changes, plastering and redecorating. HAZAKROME is permitted in applications where copper is allocated.

HAZAKROME wires fully meet the rigid safety requirements of the 1940 National Electrical Code. Write today for your copy of Bulletin 200 – THE HAZAKROME HANDBOOK.

HAZAKROME FEATURES . . .

- A full range of sizes for both lighting and power-circuits.
- Resistant to moisture, oil, chemicals and flame.
- Smooth, glossy and lubricated surface – easy pulling.
- Available in non-fading, standard building wire colors.
- Chemically stable and long aging.
- Tough insulation – a tensile strength of 2000 lbs. per sq. in.
- Free stripping – easy to install.
- No outer covering required.
- Small diameter – permits greater conduit fill.

HAZAKROME BUS-DROP CABLES

Developed to meet the widespread use of bus-duct systems in factories, HAZAKROME Bus-Drop Cable brings power to individual machines – *quickly* and at *low cost*. No conduit and no pulling is required. Ordinary squeeze-type armored cable fittings and porcelain hangers can be used. HAZAKROME Bus-Drop Cable consists of 3 stranded conductors, insulated with color-coded HAZAKROME, and three small stranded ground wires equivalent in cross-section to one power conductor. These are cabled with necessary jute filler, covered with tape and a final HAZAKROME jacket.

Hazard Insulated Wire Works, Division of The Okonite Company, Wilkes-Barre, Pa.

ELECTRICAL WIRES AND CABLES

ARMY E NAVY

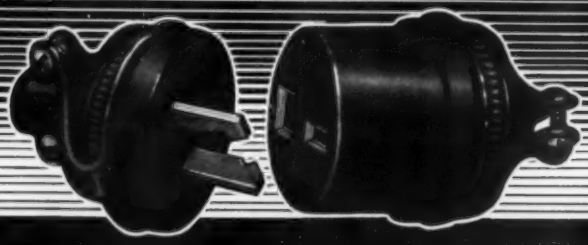
3636

H&H

POLARIZED

RECEPTACLES

PLUGS and CONNECTORS



Give the workers in war-driven plants a wider range of usefulness. Extend the *reach* of their power tools. Install more *OUTLETS* for handy connections with portable drills, grinders, riveters, saws, melting pots, light machines — in just the locations to speed up production or assembling.

These Polarized Receptacles, Plugs and Connectors dependably *energize* new operations for which present wiring facilities may be inadequate. The line includes two, three and four-wire devices in 10, 20, 30 and 50 Ampere capacity. Pictured here are a few of the more popular types, available on priorities. More specialized needs are provided for also in rugged, reliable constructions.

DISTRIBUTED THROUGH ELECTRICAL WHOLESALERS

HART & HEGEMAN DIVISION

THE ARROW-HART & HEGEMAN ELECTRIC COMPANY, HARTFORD, CONN., U.S.A.

TIMES and TRENDS

War Conference Just in time for publication elsewhere in this issue we received the detailed program of the forthcoming convention of the National Electrical Wholesalers Association to be held April 19-22 at the Hotel Stevens, Chicago, Illinois.

It is an impressive program with the topics scheduled for discussion most timely and extremely important to wholesalers and manufacturers alike.

Every electrical wholesaler or manufacturer who wants to be brought up to date on current government rules and administrative trends will find attendance very much worth while.

If you have to travel any considerable distance, hotel and two-way train reservations should be made before you leave home, if you wish to avoid disappointments.

★

Reconversion Although industrial reconversion activities cannot be expected to gain much momentum until after invasion of the fortress Europe has been accomplished, high WPB officials are giving much attention to the problems that reconversion will bring to individual plants.

Production of war material is WPB's first responsibility and nothing will be allowed to interfere with having existing war production lines remain intact and "stand by" until the General Staff authorizes tapering off. Nevertheless officials realize that manufacturers want to get back just as quickly as possible to making their peace-time products and they want to cooperate all they can.

Manufacturers might well promote their own reconversion plans through their respective WPB Industry Advisory Committee, and it is said that they will find WPB's various industry divisions quite willing to listen.

Meanwhile General Motors has provided somewhat of a yardstick to what reconversion will mean to the electrical wholesaler in the way of orders for industrial electrical supplies.

Its Chairman, Alfred P. Sloan, Jr., said in a recent statement that General Motors expects to spend $500,000,000 for reconversion, modernizing and retooling before production of automobiles can be resumed. Quite a chunk of money!

That's straight from just one large concern. When you remember that over two out of every three factories in the country have been on war production, you get an idea of the importance of reconversion as a source of business for the electrical wholesalers, during the transition period.

★

What Price War From June 1940 to December 31, 1943, commitments by various war agencies totaled $344 billion, which figure includes funds made available from all sources. Actually spent by the end of 1943 were $153 billion, leaving $191 billion still in the Kitty.

What a paper hanger that guy Hitler turned out to be—and the end is not yet in sight. Meanwhile—start right now saving money for the next Victory Loan campaign—scheduled for June. The more bonds we buy, the sooner will they be able to hang that paper hanger. Remember it's your war and you have to help win it.

★

The Road Back Anyone who is inclined to impatience at WPB's slowness in releasing civilian production should instead thank his lucky stars that we have enough hard headed business men down in Washington to keep the country from being more or less unwittingly converted to some European form of economy.

As a case in point—Material is available for making two million electric irons. The easy way would be to let any plant make them, that can do so without interfering with war production. More than one plant could do that. Its owners would get the jump on all competitors.

The brand-conscious public would have no choice but buy the iron available or do without. Many loyal manu-

(*Continued on page 49*)

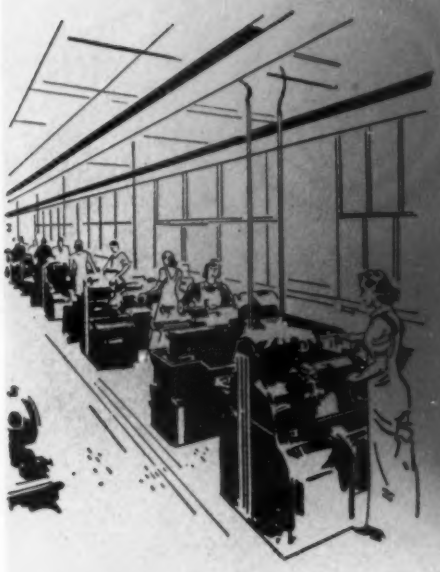
Protection-Service

Get all three with FLEUR-O-LIER

Fleur-O-Liers are equally desirable in the office, factory or store.

Want to get the most from fluorescent lighting?

For continuous row lighting, as well as for individual units, it pays to specify Fleur-O-Liers.



Then remember these important facts:

Certified Fleur-O-Liers are fluorescent lighting fixtures made by many leading fixture manufacturers in a wide variety of sizes and designs.

They have been tested, checked and Certified by independent experts, Electrical Testing Laboratories of New York, as meeting 50 definite standards for electrical, mechanical and lighting excellence.

They are available in industrial and commercial types for war plants, offices, drafting rooms and other war essential locations. (Priorities A-1-j or higher.)

Participation in the FLEUR-O-LIER MANUFACTURERS' program is open to any manufacturer who complies with FLEUR-O-LIER requirements

-Dependability
Certified
FLEUR-O-LIER
The Manufacturer guarantees by affixing this label that this Fluorescent Luminaire is a duplicate of samples found by periodic examination to comply with the minimum requirements as set up in the
"SPECIFICATIONS FOR LUMINAIRES, FITTINGS AND AUXILIARIES FOR FLUORESCENT LAMPS"
which are sponsored by the Manufacturers of Mazda Lamps.
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NEW YORK, N. Y. 6-42
E.T.L.
A COPY OF THIS CERTIFICATE SHOULD APPEAR UPON EACH UNIT OR PACKAGE
E.T.L.
FLUORESCENT LIGHTING FIXTURES EMPLOYING EXISTING TYPES OF LAMPS ARE NOT RECOMMENDED FOR SCHOOLS, OFFICES AND SIMILAR LOCATIONS UNLESS LAMPS ARE SHIELDED FROM DIRECT VIEW
THIS CERTIFICATION IS CONTINGENT UPON EMPLOYMENT OF CERTIFIED AUXILIARIES OF OVER 85% POWER FACTOR
LOOK FOR THIS LABEL WHEN YOU BUY

The quickest way to make sure your customers get the protection, dependability, and service they need and want is to sell them fixtures wearing the famous Fleur-O-Lier label.

Performance—PLUS! FLEUR-O-LIERS combine the best features of prewar equipment and with new improvements developed to help the war effort. And, of course, all manufacturers of FLEUR-O-LIER fixtures conform to WPB limitations in the use of critical materials.

How Certified Ballasts and Starters help you

- **longer fluorescent lamp life**
- **greater lighting efficiency**
- **full use of your wiring system**
- **dependable service**

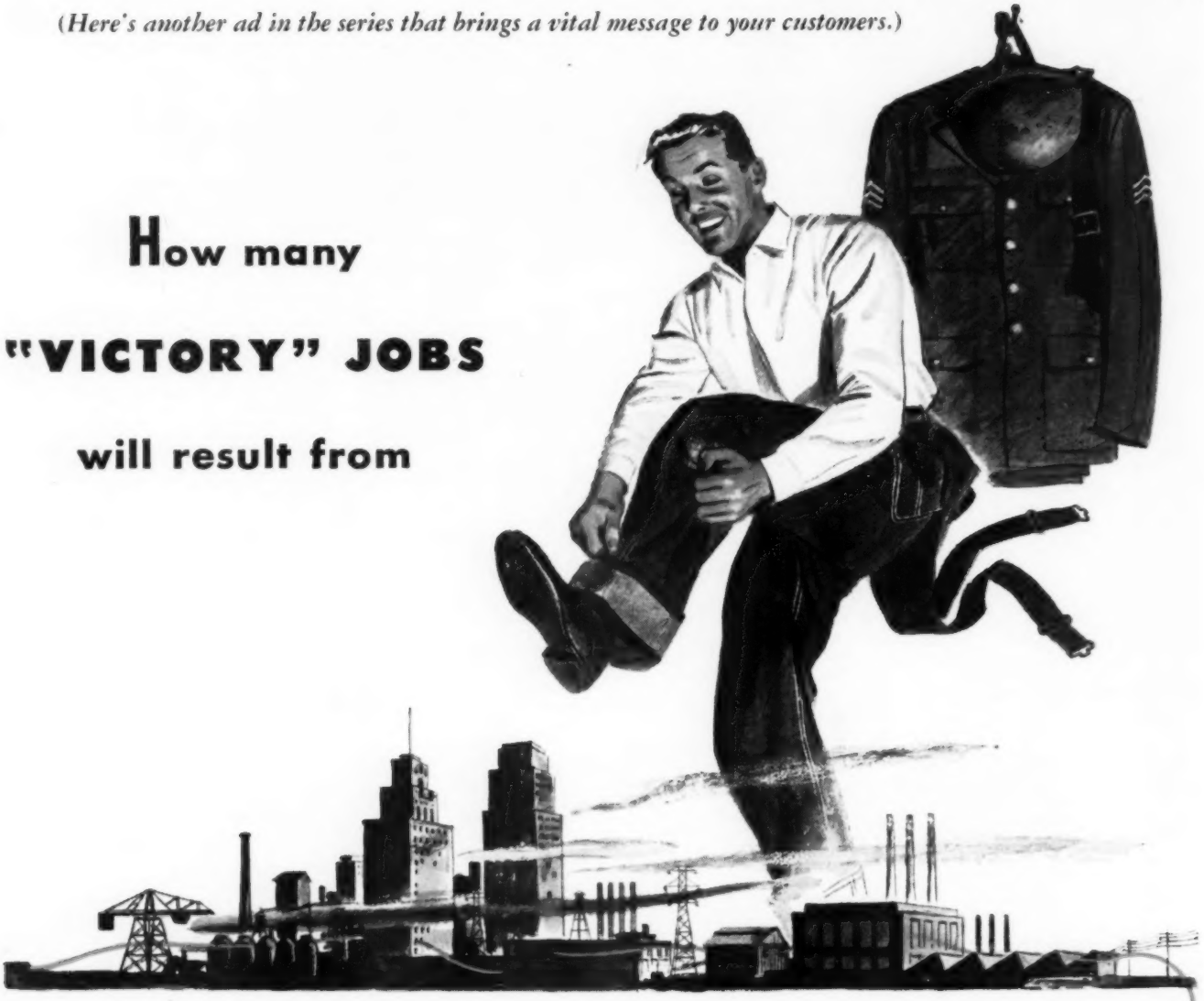
Get this Book

NEW! Write today for new booklet containing complete FLEUR-O-LIER engineering specifications, together with the FLEUR-O-LIER story and list of manufacturers. Fleur-O-Lier Manufacturers, 2121-4 Keith Building, Cleveland 15, Ohio.

FLEUR-O-LIER CERTIFIED FIXTURES FOR FLUORESCENT LIGHTING

(Here's another ad in the series that brings a vital message to your customers.)

How many "VICTORY" JOBS will result from



increased use of *Electric Energy*

It's an exciting postwar picture any way you figure it. Expanded use of electricity is one of the brightest fields to count on for jobs for our returning service men.

Think of the employment that will result from electronics alone, which includes radio, television and countless industrial and home applications. Or consider air conditioning, heating, cooking, lighting, refrigeration. As new and finer electrical products are developed, employment all along the line will be created . . . within the electrical industry, and in every other industry.

But one thing is self-evident. Wiring will have to come first. Adequate wiring will be essential to full utilization of the electrical possibilities of the future. Now—in advance—is the time to plan for it. By all means, give it full weight in your postwar thinking.

Unwired planning will cost you a whole lot more than *planned wiring!* 44228

ADEQUATE WIRING SERVES AND SAVES — KEY TO VICTORY JOBS

HELP BRING VICTORY SOONER . . . BUY MORE WAR BONDS.

ANACONDA

ANACONDA WIRE & CABLE COMPANY

25 Broadway, New York 4 . . . Sales Offices in Principal Cities

Electrical Wires and Cables of Copper are the Life Lines of our Nation

(*Continued from page* 45)

facturers still tied up 100 percent on war production who prior to the war may have spent millions of dollars on building up and protecting public acceptance of their brand would be left impotent, might never be able to regain their position in the market.

Instead of such arbitrary procedure, WPB compels manufacturers to file application to manufacture, will scrutinize the war record and present status of each applicant, measure his pre-war position in the industry and appraise the labor situation in his town. Eventually permission will be granted where interference with present and potential war production is least and quantities assigned to each manufacturer will be consistent with his pre-war status, so that the competitive balance of an industry will not be changed by Government fiat.

To us that looks like fair and sensible handling of an extremely dangerous and ticklish problem, and we for one are thankful that enough business men are remaining on their jobs in Washington—at great sacrifice to themselves—to see that our war-power conscious bureaus don't go completely haywire.

★

Lampist We are indebted to the *Sylvania Lighting News* for the information that among the 30 to 40 thousand people who work in the War Department's famous Pentagon Building there are eighteen women who are classified as "lampists."

Those ogling eighteen are part of the maintenance staff and their job is seeing that burned out lamp bulbs are promptly replaced with new ones. It is said that each lampist has her own "territory" to cover, carries special equipment for the job and—according to C. B. Mulvehill, building superintendent, special slacks-and-blouse uniforms for lampists have been ordered.

Considering all the burned out bulbs and empty sockets we see around in public buildings, factories, homes, it seems to us that lampists are needed in lots of places.

★

Surplus Goods Goldfish Bowl From John L. Sullivan, Assistant Secretary of the Treasury comes the statement that "as the Baruch report suggested, all sales will be made in a goldfish bowl."

Mr. Sullivan, who will supervise all of the activities of the Treasury Procurement Division in connection with government-owned materials and products on hand, also assured the National Automobile Dealers Association that members of his departmental staff would carry out the promises of Director W. L. Clayton.

Those promises included assurances that dealers would be notified just when and where surplus materials of interest to them will be placed on sale so that they may have an opportunity to inspect surplus materials and bid on them. All this indicates that there is genuine desire to carry out that goldfish bowl plan.

Meanwhile: A few days ago a sale of surplus plane parts and accessories was held in New York where many items were bought for local retail sales. Chicago already has seen one small lot of jeeps offered to the public. From Washington, D. C., a dispatch reports that a ceiling price of $400 has been set on a certain type of motor cycle, originally intended for Africa, and that 4,700 of these motor cycles are to be sold to the public shortly.

Here's hoping that the goldfish bowl will not turn out to be a frosted globe.

★

Retail Sales Boom We do not know how much the current crop of crystal gazers has on the ball but the important sign of encouragement is, that the best known authorities seem to be quite in agreement on one point, namely that a tremendous boom in retail sales will follow cessation of fighting.

Since the Committee for Economic Development says that we must shoot for a post-war national income of $140 billion, experts say that retail sales volume will total $75 billion annually. Compared with $62.9 billion in 1943 and only $42 billion in 1939, that $75 billion looks mightly big.

Whatever new records in retail sales the immediate post-war years may pile up—it is certain that electrical dealers will get a big share of the consumer dollar and that means: WHOLESALERS should get busy awfully fast to build up the best possible group of retail outlets that they can line up for that future boom.

Every first class manufacturer of appliances and radios is ready now to cooperate with wholesale distributors for that purpose.

★

B and G Our comments on "why would anybody mention beefsteak and girdles in the same breath" (January TIMES AND TRENDS), were not found funny at all, by at least one member of our editorial staff.

"Heck," he said, "from the quality of some of the beefsteak you get these days I figure that some of them really must be made out of old girdles."

Maybe he is not so wrong at that—since most of us would have to put a lot of the two-way girdle stretch into our meat points to get any kind of a steak.

EDITOR

STARTING OUR SECOND HALF CENTURY!

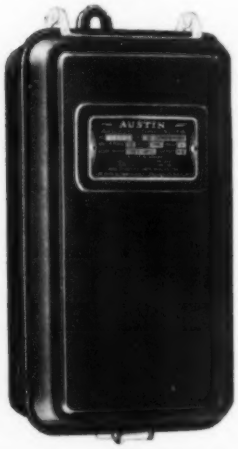
AUSTIN TIME SWITCHES

. . . with slow-speed, self-starting, self-lubricating Synchronous Motor

Our original objective was to design and provide the finest, most complete line of Electrical Wiring Products that sound engineering and modern facilities could produce. We have achieved that objective as evidenced by the great demand for our products and our exceptional growth. In keeping with this original pledge, we now announce—on our FIFTIETH ANNIVERSARY—the addition of AUSTIN Time Switches to the famous AUSTIN Line. We do not hesitate to say that our Distributors will find the same outstanding features in AUSTIN Time Switches as they found in the AUSTIN Products that have sold so well through the years. AUSTIN Quality, Service, and Policy of Distribution through the Electrical Wholesaler remain the same.

"S"
STANDARD
SYNCHRONOUS
TIME SWITCHES

"H-D"
HEAVY DUTY
SYNCHRONOUS
TIME SWITCHES



"P & S"
POULTRY HOUSE
LIGHTING
TIME CONTROLS

THE M. B. AUSTIN COMPANY 50th ANNIVERSARY 1894 1944 The Austin Lines

SEND FOR BULLETIN No. TS-1 AND PRICES

THE M. B. AUSTIN COMPANY
108-116 So. DESPLAINES ST. CHICAGO 6, ILL.

One head is b
ROBBINS & M
MOTORS · HOISTS · CRANES · MACHIN
Did th
Not by a
ROBBINS & M
MOTORS · HOISTS · CRANES · MACHIN
He couldn't fight his way
out of a paper bag!
ROBBINS & MYERS, Inc.
FOUNDED 1878
MOTORS · HOISTS · CRANES · MACHINE DRIVES · FANS · MOYNO PUMPS

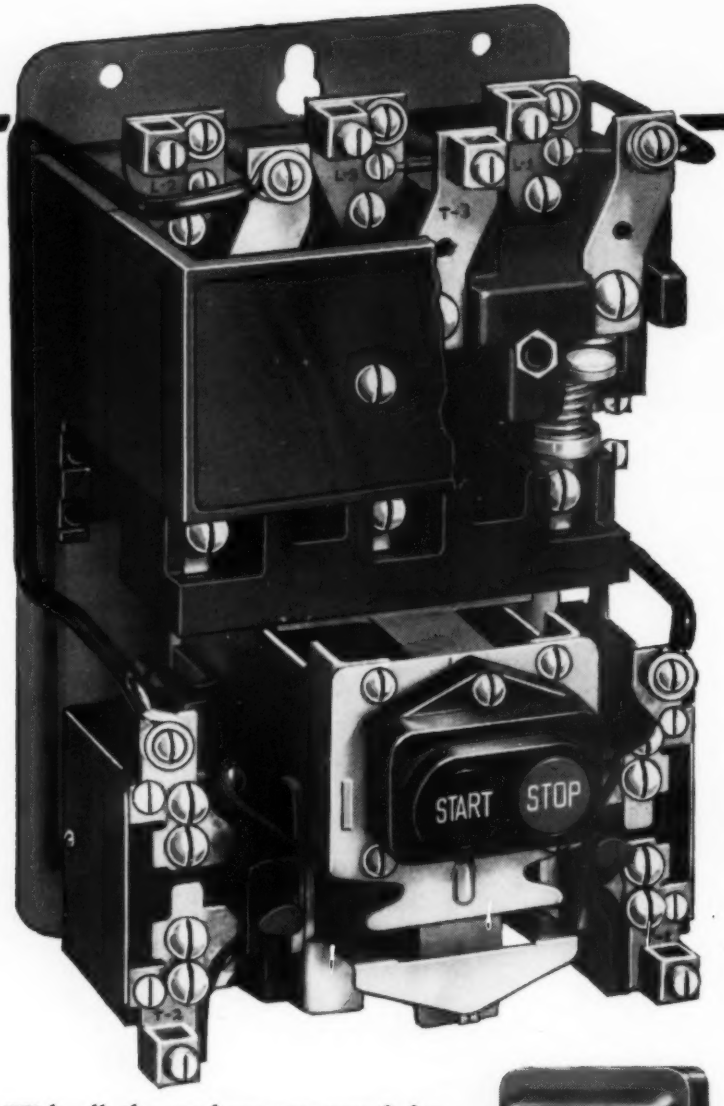
Telling them why

the R & M FANS you haven't got today will be their best buy... *Tomorrow!*

Across the nation, R & M advertising is telling your potential buyers of electric fans that Robbins & Myers is a wartime builder of stabilizers and automatic pilots for the Norden Bombsight System. Why? So that they can look to you for a full share in the benefits of our war-learned, precision-instrument know-how when peace comes. Robbins & Myers, Inc., Fan Sales Division, Springfield, Ohio.

New COLT MOTOR STARTERS

Size 2



THE value of a motor starter to you is decided by how it measures up on three basic requirements; **performance, life** and **ease of maintenance.** Recognizing these requirements Colt engineers have built into this new Size 2 Starter the superior features which have won such general acceptance for the Size 0 and Size 1 Starters.

Features such as these: **Vertically Acting Magnet** that prevents accidental closing by vibration or shock; **Ball Bearing Operating Mechanism** that slides frictionlessly and assures smooth, dependable action; **Pure Silver Contacts** that minimize contact burning and replacements; **Simple, Easily-Accessible Construction** that permits replacements and maintenance work without even removing the mechanism from the case.

All of these and other equally desirable features add up to smooth, trouble-free performance, long life, and simple, easy maintenance. Before deciding upon new motor starters look over the performance-tested features of these new Colt Starters.

NOTE THESE FEATURES

Ball Bearing Suspended Magnet . . . guides contacts frictionlessly into correct alignment. Vertical magnet cannot close accidentally.

Contacts Easily Removed . . . any contact, stationary or movable, can be removed for inspection or replacement by merely loosening one screw.

Magnet Coil Easily Changed . . . to change the magnet coil it is necessary to merely loosen two screws and remove two parts.

Either Hand or Automatic Reset . . . to meet requirements of the installation or the operator, by simple quarter turn of handy plungers.

Takes Same Overload Heaters . . . as Sizes 0 and 1 — plus additional larger heaters. This standardization reduces to a minimum the number of spare heaters required.

Pure Silver Contact Buttons . . . minimize contact burning and replacements.

Easy to Install and Maintain . . . entire unit is mounted on a steel plate. Plenty of wiring space. Pressure wire connectors.

With all the performance-tested features of the Size 0 and Size 1 Colt Starters.

SIZE 2 H.P. RATINGS

Volts	*Single Phase*	*Polyphase*
110	3	7½
220	7½	15
440-600	10	25

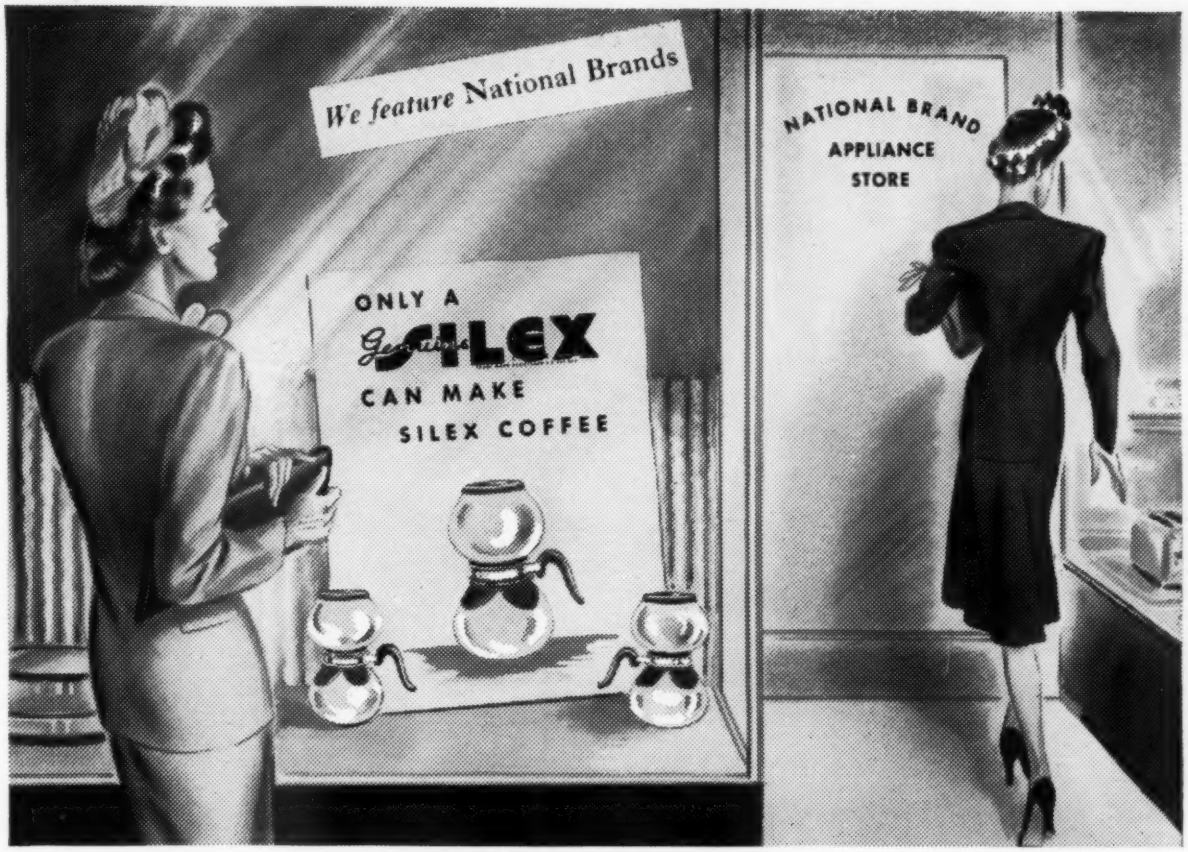
Available with Local, Remote or Transfer Switch Control.

ARMY (E) NAVY

COLT

COLT'S PATENT FIRE ARMS MFG. CO., ELECTRICAL DIVISION, HARTFORD, CONNECTICUT

BRANCH OFFICES: Boston, New York, Philadelphia, Pittsburgh, Cleveland, Chicago
PACIFIC COAST REPRESENTATIVE: The Frank H. Bran Co., Los Angeles, San Francisco.



National Brands are the things in your store that say:

"Hello, *friend!*"

MANUFACTURERS have expended billions in advertising and promotion to establish trade names that have become household words. Among these famous brands are washing machines, refrigerators, ranges, toasters and many other items that you regularly carry in stock.

The good will represented by these trade names is an asset of incalculable value to the producers, distributors and to the retailers. A known brand inspires confidence. It insures fast turnover of inventory, with protected profits.

Remember, with so many newcomers in town, not every passer-by knows *you*. But they all *do* know products that have been nationally advertised over a long period of years. So prominent display of nationally-advertised brands reaches out and says "Hello, friend" . . . attracts new customers inside your store.

Long profits on low price merchandise are tempting. But, if you are building your business for permanence and assured profits, you have a tremendous stake—your stock interest in the billions of dollars expended to establish these trade names.

Silex is the greatest name in glass coffee makers—the coming great name in steam irons.

THE SILEX COMPANY, *Hartford 1, Conn., Creators of the Glass Coffee Maker Industry*

Genuine SILEX
GLASS COFFEE MAKER
TRADE MARK REGISTERED U. S. PAT. OFF

in step with the FUTURE!

the new Fluor-O-Master

Trade Mark Reg. U.S. Pat. Office

PRECISION ENGINEERED Lighting Units of *Today!*

The new Skyliner Luminaire is just about the finest commercial fluorescent lighting unit you've ever been offered at any price. It combines all possible expert engineering features with smart design and sales appeal . . . at popular prices!

Check these Skyliner features: May be used for continuous lines of light or as separate fixtures; New patented "Speedhanger" permits one-man installation; lamps and starters easily removable without removing end caps or lamps; new ends . . . revolutionary in design and principle; adding to the attractive appearance of the unit; simplified wiring and maintenance.

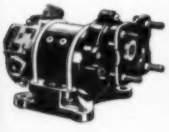
and the new 5 STAR merchandising plan

The new Skyliner units are synonymous with an entirely new ELECTRO merchandising plan that packs a real selling wallop:

- ★ **Popular pricing**
- ★ **Restricted distribution**
- ★ **3-way engineering**
- ★ **E. T. L., U. L. & ELECTRO Standards**
- ★ **I. B. E. W. affiliated with A. F. of L.**

If you don't get to see the Fluor-O-Master line while at the April Convention, write us at once for complete information.

IN WARTIME...



Every ounce of the skill now being utilized by Electro in the manufacture of electrical devices such as this precision explosion-proof aircraft motor for the armed forces has been utilized in the design and production of our new Lighting Equipment line.

ELECTRO MANUFACTURING CO.

2000 WEST FULTON STREET • CHICAGO, ILLINOIS

Important WPB COPPER Order

March 29, 1944

Copper Division
Room 1752, Tempo R
CU-39
CMPL 582

TO: COPPER WIRE MILL WAREHOUSES
(AND COPPER WIRE MILLS)

SUBJECT: Warehouse Stocks — Copper Wire Mill Products

Warehouses were informed on December 9, 1942, (PDL-1215) that they should apply before January 1, 1943 on a one-time PD-IX application for authorization to bring their stocks of copper wire mill products, if depleted, up to a practicable working minimum.

Apparently this information did not reach all Warehouses, although the information was published, at the time, by Trade Associations and other publications and was distributed by most Copper Wire Mills. In addition, this information was also forwarded directly to all known Warehouses that were delivering copper wire mill products to "industry and trade."

The Copper Division of the War Production Board has received, in recent months, numerous requests from Warehouses to increase present warehouse stocks, re-establish stocks, and establish new stocks of copper wire, cable and cords.

Available manpower and production facilities of Copper Wire Mills are being utilized entirely in the production of copper wire, cable and cords (1) to maintain delivery schedules to the Armed Services and other Claimant Agencies and (2) to maintain present warehouse stocks at the minimum level necessary to meet emergency war-time requirements for such stocks.

Consequently, as of the date of this letter and until further advised, applications for INCREASED stocks or RE-ESTABLISHMENT of old stocks will not be considered if submitted by Warehouses (as defined in CMP Reg. 4) who filed a special PD-IX application in December, 1942, or who have subsequently been allowed increased stocks or re-establishment of old stocks.

Very truly yours,
(Signed) J. Joseph Whelan
Recording Secretary
WAR PRODUCTION BOARD

Illustration from an ILG ad in Time *and* The Saturday Evening Post.

"Grace" popped her eyes for millions of people

Over 110,000,000 ILG messages were delivered to *Time* and *The Saturday Evening Post* readers alone during 1943! For 1944, ILG has not only re-scheduled *Time* and the *Post*, but is using a total of 24 publications... 134 advertisements... with 64 ads in color! In addition to the general public, practically every architect, engineer, contractor, industrial executive and governmental official in America is being bombarded with the ILG sales story. Think what this means to *you*—how it helps back *you* up on the "firing line"—how it helps increase *your* sales! If you have not heard the whole story about how ILG is paving the way for *you*, write us or phone our nearby Branch Office (consult your classified directory.)

ILG ELECTRIC VENTILATING COMPANY

2822 NORTH CRAWFORD AVENUE • CHICAGO 41, ILLINOIS

OFFICES IN 38 PRINCIPAL CITIES

ARMY E NAVY

ILG

VITALIZED VENTILATION

AND AIR CONDITIONING

Recent WPB Orders and Revisions

Electric Iron Production Authorized By WPB

The much-talked-about production of electric irons for civilian use war authorized in February 24th, on a limited basis in plants where labor is available and where there will be no interference with existing or potential war contracts.

Concerning the manufacture of these irons, the WPB said:

"Electric irons for civilian use will not be rationed. They will be distributed equitably through normal channels, and consideration will be given by manufacturers to conditions resulting by war-time population changes in various areas of the country. In case of emergency needs, WPB may direct the distribution of specified quantities of irons from any manufacturer's production.

"Few of the new irons will appear in retail stores before the middle of the year. Before production can begin, production quotas must be assigned and materials allocated by WPB to manufacturers qualified to participate in the program. Not until then can production lines be set up."

Motors On AA-3 For Repairmen

Repair shops may now use the AA-3 preference rating assigned to them by the Controlled Materials Plan Regulation 9-A to obtain fractional horsepower motors from dealers, wholesalers or motor agencies, according to a recent decision of the War Production Board.

Wholesalers, dealers or motor agencies having fractional horsepower motors for sale are required to honor the AA-3 from repair shops if the motors in stock are not needed to fill orders bearing higher preference ratings, it was stated. However, the buyer must be willing to meet the sellers regularly established prices and terms of sale or payment.

The board said that any seller who fails or refuses to accept an order bearing a preference rating may be required, upon written request of the person placing the order, to give his reasons in writing for such failure or refusal.

Since the demand for fractional horsepower motors for combat services is unusually large, WPB stated, it is necessary to restrict their sale to essential purposes. For this reason, only those fractional horsepower motors needed to replace brokendown motors may be sold without a rating, and those replaced motors must be taken in exchange to be repaired where practicable and to be resold under similar conditions. Motors for any other purpose may be sold only on orders bearing a preference rating.

"An old motor cannot be demanded by a wholesaler, dealer or motor agency for a new motor as part of the purchase price on an order bearing the AA-3 rating.

"Every wholesaler, dealer or motor agency interested in having a small supply of fractional horsepower motors for resale to repair shops in rated orders was urged to file immediately on form WPB-547 application."

Steel Order M-21-B Amended by WPB

The War Production Board announced on March 16th that rules governing purchases by distributors of most steel products have been simplified and liberalized through the amending of M-21-B-1 and M-21-B-2, the orders which govern general steel products and merchant trade products.

Only distributors are effected by the amendment, and the changes do not affect restrictions on deliveries of steel to consumers, whether by producers or by the distributor.

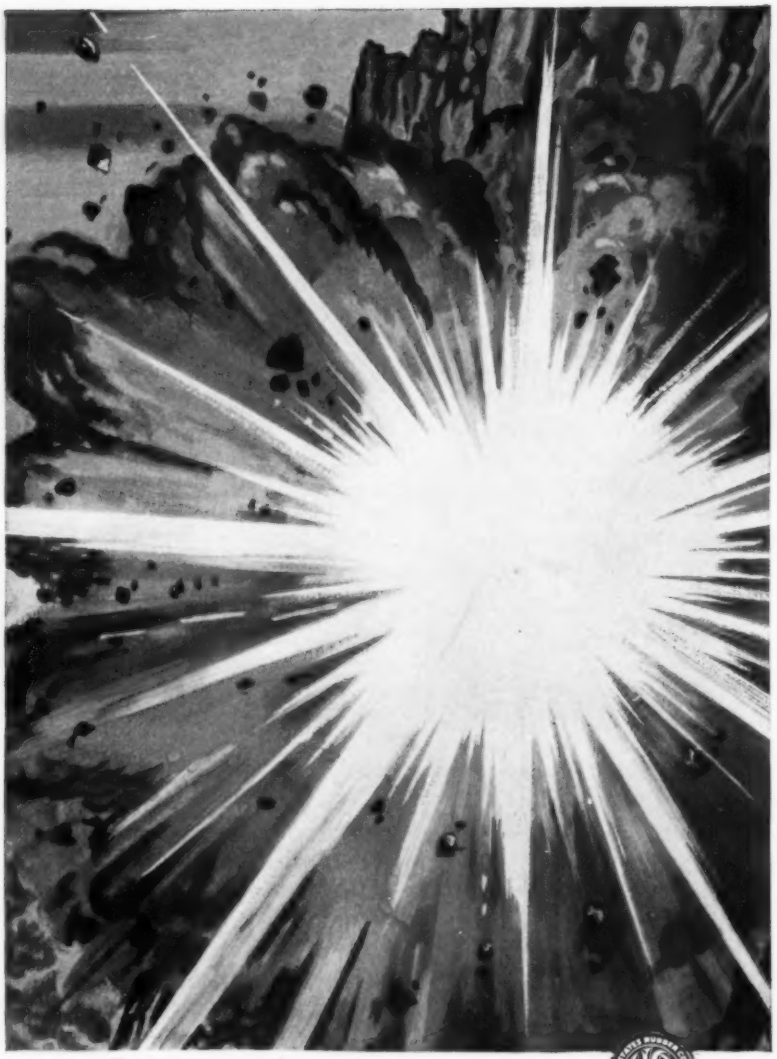
Previously a distributor was allowed to purchase only such merchant trade products and general steel products from producers as the distributor ordered from producers during his base period. But under the amendment, distributors may order any items except steel plate, tubing and hot rolled sheet and strip from producers or any other source, without restrictions except that such purchases are limited to the tonnage previously sold from stock.

Distributors may also order without limit from holders of idle or excess inventories. Such orders have the status of authorized CMP orders.

Wire And Cable Price Margin Fixed

Amendment 7 to RPS 82, issued by the Office of Price Administration restricts the maximum price for wire, cable and cable accessories for sales of those items by wholesalers to industrial, commercial and Government purchasers to 120 percent of the manufacturer's net price to wholesalers in the same quantities. The amendment reads as follows:

"In any case and on and after March 31, 1944, the maximum price for wire, cable and cable accessories priced under this paragraph shall not be more than 120 percent of the manufacturer's net prices to wholesalers in the same quantities. In the case of any line of wire, cable and cable accessories where the manufacturer's prices vary with the quantities when sold to users but do not vary with quantities when sold to wholesalers, the maximum price shall be either (a) the price determined according to the preceding sentence, or (b) the manufacturer's price to users in the same quantities, which ever is higher."



WHEN A SHELL "WHUMPS" INTO THE EARTH...

...everything brittle for yards around may shatter.

That's why it's so important for the electrical insulation on wires and cables to retain its resiliency under all conditions of service. It does...on Laytex Wires and Cables... even when the weather changes from tropical heat to below zero within hours...also when subjected to continual vibration and repeated shock.

This enduring resilience of Laytex insulation is due to (1) The purified ingredients in the compound, (2) The unique process of building up a homogeneous insulation around the conductors by continuous dipping, drying, and vulcanizing. This combination results in perfect centering of conductors within an insulation so high in dielectric strength that the overall diameter can be appreciably reduced with safety.

Consequently Laytex Wires and Cables are lighter in weight, easier to handle, ship and store than those with conventional types of insulation...and they are also unaffected by long exposure to moisture.

Laytex® **ASSAULT WIRE** **SERVING THROUGH SCIENCE**

SKI TROOPS USE Laytex Assault Wire for front line field telephones. On Detectors, Guns and Lights other types of Laytex Wire and Cable are used for power, signalling and control. Insulation of Laytex Wires and Cables withstands extremes of temperatures of all climates.

LAYTEX IS GLOBAL WIRE—All available facilities for producing U.S. Wires and Cables are still being devoted to the gigantic needs of the Armed Forces throughout the world.

We are repeatedly asked if we can furnish wire and cable for commercial and industrial uses. Not yet. But the time can't come too soon for us to resume peacetime manufacturing of Wires and Cables for Buildings, Police and Fire Alarms, Communications, Signalling, Power and Control.

Listen to the Philharmonic-Symphony program over the CBS network Sunday afternoon, 3:00 to 4:30 E.W.T. Carl Van Doren and a guest star present an interlude of historical significance.

UNITED STATES RUBBER COMPANY

1230 SIXTH AVENUE, ROCKEFELLER CENTER, NEW YORK 20, N. Y. • *In Canada:* DOMINION RUBBER CO., LTD.

WHOLESALER'S SALESMAN NEWS

WPB'S Fluorescent Committee Discusses 1944 Outlook

Effect of radio transformer demands on ballast supply, and possibility of changes in L-78 regulations under discussion by industry men

THE possibility of a temporary shortage of fluorescent lamp ballasts because of the government's urgent need for expanded production of transformers for radio and radio locators was brought out before the WPB Fluorescent Lighting Fixture Advisory Committee recently by W. E. Wilson of the WPB's Power Division. Labor, rather than materials, is the bottleneck, he declared, as experienced workers are needed for both types of production. Steps are being taken, however, to help alleviate the problem by shifting facilities to less critical areas where possible, it was stated.

Fluorescent Lamp Outlook

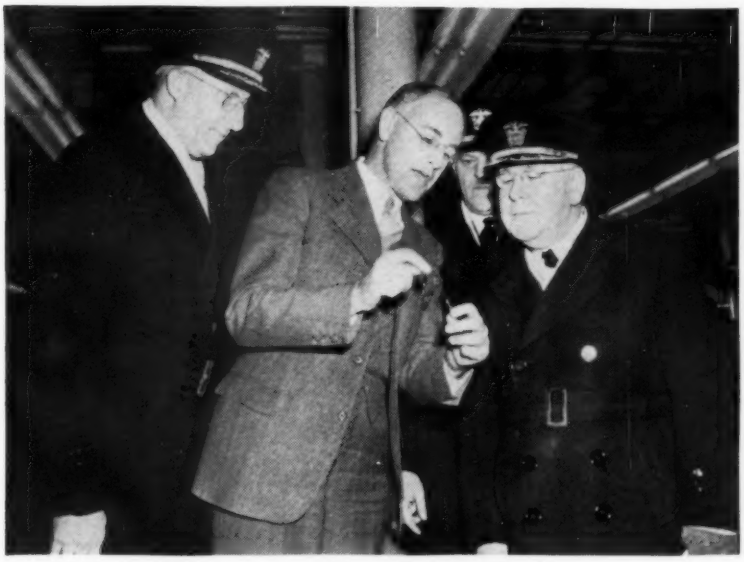
No shortage in the supply of fluorescent lamps is expected this year, according to F. H. Denslow, WPB's Consumer Durable Goods Division, in his talk before the committee. He said that production facilities are adequate, and as most plants are not located in critical labor areas no acute labor shortage has been felt.

The only problem expected in the production of the estimated 36 million fluorescent lamps in 1944 will be in the supply of certain chemicals which are also needed by the Army for other purposes.

Civilian Production Doubtful

In view of the critical manpower shortage, no policy of rapid resumption of non-industrial civilian production can be entertained by the WPB at this time, the committee members heard from J. G. Shott of the WPB Office of Manpower Requirements.

One member of the committee suggested that a limited resumption of civilian production might be the solution to one industry problem that grows out of changing war needs—that is the problem of holding workers during the transition period between war contracts or during the lull caused by changed military specifications. The WPB member replied that no feasible method of effectuating such a program without interfering with the war program had been worked out.

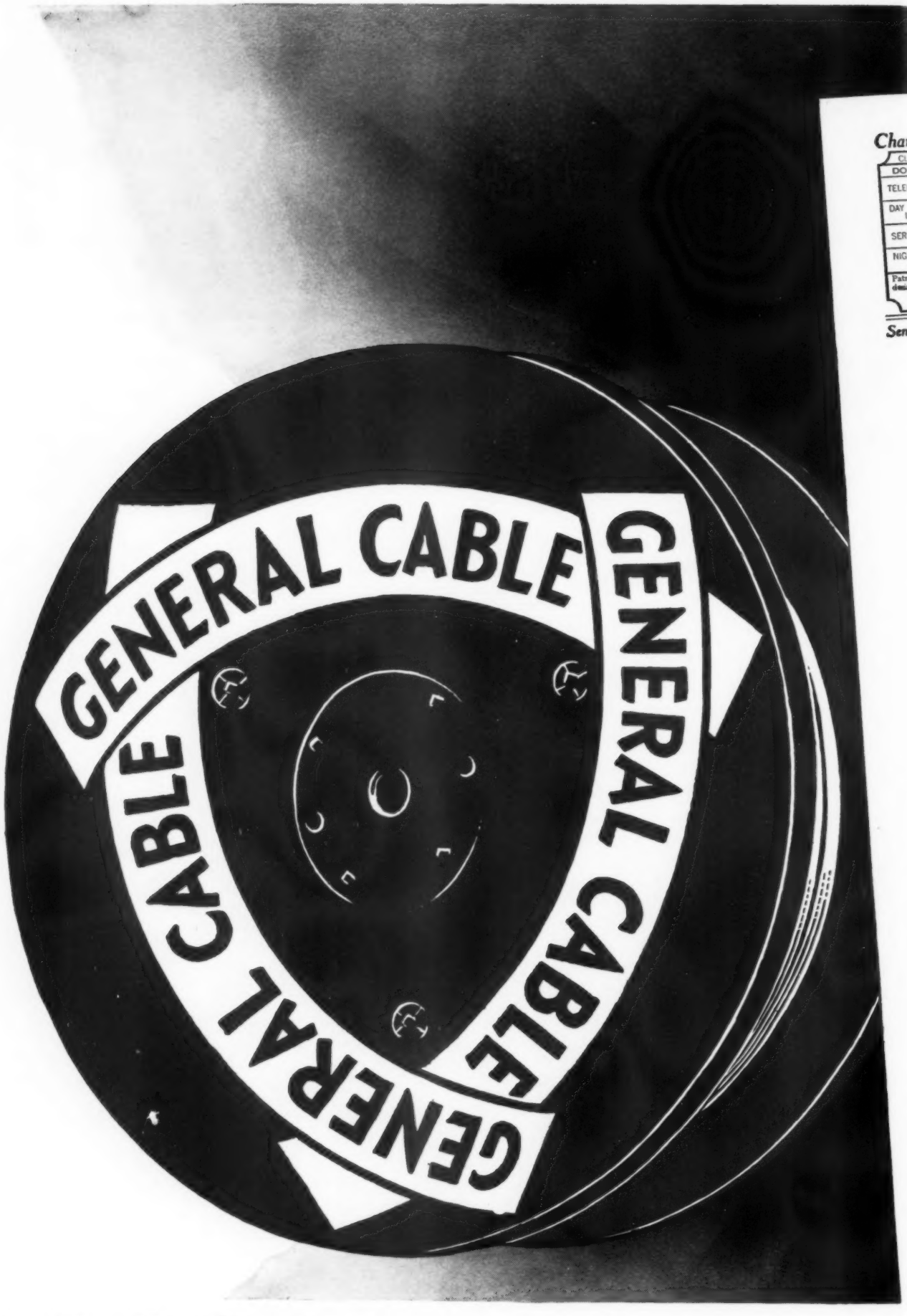


INSPECTING COMPONENTS of high-powered incandescent lamps which are made to withstand the concussion of a battleship's gun salvo. At the Salem, Mass., plant of Sylvania Electric Products, Inc., is R. E. Barrett, plant manager, explaining construction of the lamps to Capt. J. J. Hyland, U.S.N., inspector of naval materials, while other high ranking naval officers look on.

OPA Limits Wire-Cable Retail Price Margin

In a move which the Office of Price Administration claims is designed to strike a blow at the black market in essential materials, that office on March 15th limited the resale price of copper wire to industrial users to 20 percent above the manufacturer's net prices for the same quantities to wholesalers.

The order, amendment 7 to RPS 82, effective March 31, 1944, states



G E N E R A L C A B L E

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charge to account of

CLASS OF SERVICE: DOMESTIC TELEGRAM, DAY LETTER, SERIAL, NIGHT LETTER

WESTERN UNION

1206

CHECK

ACCOUNTING INFORMATION

TIME FILED

A. N. WILLIAMS, PRESIDENT

NEWCOMB CARLTON, CHAIRMAN OF THE BOARD

J. C. WILLEVER, FIRST VICE-PRESIDENT

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

1944, FEB. 17

TO OUR CUSTOMERS:

CONTINUING OUR SURVEY OF THE PRACTICES, CONDITIONS AND PROCEDURES THAT HAVE BEEN EXISTENT IN THE WIRE AND CABLE INDUSTRY OVER A PERIOD OF YEARS, WE ARE SATISFIED THAT THE ELIMINATION OF SOME OF THESE POLICIES CANNOT HELP BUT RESULT IN SUBSTANTIAL BENEFITS TO ALL BRANCHES OF THE ELECTRICAL INDUSTRY, TO ALL CUSTOMERS AND TO THE GENERAL PUBLIC. AS OUR STUDIES DEVELOP THE NEED FOR CORRECTIVE MEASURES, WE WILL, IN LINE WITH OUR CONSISTENT POLICY, PROMPTLY INSTITUTE SUCH CHANGES AS EXPERIENCE AND CONSIDERED OPINION WARRANT.

AT THIS TIME WE FEEL IT INCUMBENT UPON US TO ASSUME "CLEARANCE OF THE DECKS" IN RESPECT TO REELS, SPOOLS AND CASES WHICH ARE USED FOR THE SHIPMENT OF PRODUCTS OF OUR MANUFACTURE.

EFFECTIVE MARCH 1, ALL GENERAL CABLE CORPORATION CONTAINERS WILL BE SHIPPED ON A "NO CHARGE" BASIS AND NO PAYMENT OR DEPOSIT WILL BE REQUIRED.

WE HAVE CONFIDENCE THAT OPERATION OF THIS PLAN WILL RECEIVE THE SUPPORT AND COOPERATION OF ALL PARTIES AT INTEREST, ELIMINATING AS IT DOES THE PRESENT COSTLY AND MANPOWER-CONSUMING METHOD OF HANDLING CONTAINERS. IT IS REQUESTED THAT ALL GENERAL CABLE CORPORATION RETURNABLE TYPE CONTAINERS BE RETURNED PROMPTLY, FREIGHT COLLECT.

WE WILL ALLOW CREDIT FOR THE RETURN OF ALL CONTAINERS YOU HAVE BEEN BILLED FOR AS CONTAINERS AND WHICH YOU HAVE PAID FOR, PROVIDED THEY ARE RETURNED IN GOOD CONDITION ON OR BEFORE FEBRUARY 28, 1945. AFTER THAT DATE, NO CREDIT WILL BE ALLOWED FOR THE RETURN OF CONTAINERS.

THE COOPERATIVE EFFORT OF ALL CONCERNED WILL DETERMINE THE EFFECTIVENESS OF OUR POLICY AND OF OUR ABILITY TO CONTINUE IT.

GENERAL CABLE CORPORATION....

C O R P O R A T I O N

IS YOUR BRAIN CHILD A PROBLEM CHILD?

Take it up with WALKER of CONSHOHOCKEN!

Post-war developments may bring plenty of new and difficult problems in wire, cable or conduit. But don't worry—we can help you. Our long experience and our expanding research laboratory are at your service. If we don't have the answer, we'll soon find it.

"WALKER of Conshohocken" means *Service.* We invite your questions and your special problems. Write, wire or telephone to Walker of Conshohocken, Pa.

Ask your local Distributor for prices and deliveries.

WIRE WITH WALKER

- Rubber-Covered, Synthetic and Leaded Wires and Cables
- "Walkerflex" Non-Metallic Sheathed Cables
- Service Entrance Cables
- Automotive Wires and Cables
- Shipboard Cables—Leaded, Non-leaded; Synthetic or Varnished Cambric Insulation
- Electric Metallic Tubing
- "Dualcote" Rigid Steel Conduit
- "Preset-Inserts" Underfloor Distribution Systems

WALKER of Conshohocken

that "in cases where there are several sales among wholesalers of wire, cable or cable accessories, the combined profits of all the wholesalers participating may not exceed 20 percent of the manufacturer's ceiling price."

NEMA Establishes Purchase Provision

It was decided by members of the National Electrical Manufacturers Association at a recent meeting to suggest that the following provision be placed on all purchase orders.

"You hereby agree to all rules and regulations as prescribed in the War Department's 'Procurement Regulation 15' and 'Termination Accounting Manual' and the 'Uniform Termination Article for Fixed Price Supply Contracts' and 'Statement of Principles of Costs upon Termination of Government Fixed Price Supply Contracts,' also any future regulation."

Light and Power Industry Cited By Coffin Foundation

Special citation honors war-time achievements of the people who produce light and power for the nation. Gerard Swope announces industry-wide award

THE country's private and public producers of light and power were honored recently with a special citation by the Charles A. Coffin Foundation. The award was made as a means of honoring the remarkable achievement of these who have produced electric light and power in the greatly increased amounts required for war-time needs, according to Gerard Swope, chairman of the Board of Trustees of the Foundation, and president of the General Electric Company, in announcing the award.

Mr. Swope said, in part: "Faced with unprecedented demands, the electric light and power industry has met every war production requirement without delay and without impairment of its peacetime services to the public. This achievement merits the appreciation not only of American industry but of the entire nation."

Mr. Swope explained that one of the significant contributions to the outstanding productiveness of American industry in this war—a productiveness which has been acclaimed by President Roosevelt, Marshall Stalin, Prime Minister Churchill, and Generalissimo Chiang Kai-Shek—has been the adequate supply of electricity in all parts of the country by private and public organizations.

"No other country in the world has as large a supply of electric power for industry, either in total or per workman, or so abundant a supply of light and power for the home," Mr. Swope declared.

Pointing out that the Army and Navy, through their "E" awards, have given public recognition to the con-

(*Continued on page* 141)

Electrical Manufacturers Open Service and Information Bureau

To make statistical and other data on electrical industry available to the press and the public through centralized bureau under J. P. Morehead

ESTABLISHMENT of a new service bureau to be the central source of information about the electrical industry, was announced last month by the National Association of Electrical Manufacturers.

The bureau will be known as the Electrical Manufacturers Public Information Center, and will be located at 155 East 44th St., New York, N. Y.

The Center is assembling all available facts, human interest and statistical, about the electrical industry—its products, history of growth, wartime activities and future—according to Leonard Kebler, president of NEMA, and W. J. Donald, managing director of NEMA, who explained the bureau and its functions.

They said that background material and special sources of information will be provided on request to qualified groups and the press, and periodical releases will be issued.

John M. Morehead, formerly of the New York Herald Tribune and the Kansas City Journal, is in charge of the Center.

At the opening of NEMA's new public information center in New York were, left to right: W. J. Donald, managing director of NEMA; Leonard Kebler, president of NEMA; and C. W. Higbee, chairman of the Public Information Committee which is supervising the new service bureau.

Score another war production bull's eye for ***FRINK:***

ENGINE COWLINGS for the cannon-carrying P-39

Pumping powerful armor-piercing shells into enemy tanks and blasting his gun emplacements with explosive cannon fire, the low-flying P-39 is always a welcome sight to our ground forces. On fighting fronts all over the world our troops and the troops of our allies cheer when they see these fast, sleek planes swoop down to clear the way for their advance.

The engine on a P-39 is covered with a cowling, snugly fitted to conform to the shapely streamlined surface of the ship's fuselage. Many of these engine cowlings are made by Frink.

During the 87 years that The Frink Corporation has been specializing in precision engineering and manufacturing, the name Frink has become synonymous with quality and skill in the lighting industry.

A pioneer in Fluorescent illumination as well as in Incandescent lighting, The Frink Corporation developed LINOLITE, the famous "engineered for vision" Fluorescent equipment now giving such profitable and trouble-free service in many of America's foremost factories, stores and banks.

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THIRTY-SIXTH ANNUAL CONVENTION AND 3RD WAR CONFERENCE NATIONAL ELECTRICAL WHOLESALERS ASSOCIATION

THE STEVENS — CHICAGO, ILL.

APRIL 19-22, 1944

PROGRAM

Wednesday—April 19

Meeting of Executive Committee with members of the Management Committee

Thursday—April 20

Morning

Organization Meeting of the Electrical Appliance Distributors Division

Meetings of Commodity Committees

Meeting of Electrical Appliance Distributors (Second Organization Session)

Evening

Dinner — Grand Ball Room — Entertainment furnished by courtesy of Electrical Wholesalers of Chicago.

Friday—April 21

Morning

Opening Convention Session—Grand Ball Room—for members and guests

Address of Welcome: Mr. Nathaniel Leverone, Chairman of the Board, Automatic Canteen Company of America

President's Address: Mr. D. Lyle Fife

Managing Director's Remarks: Mr. Charles G. Pyle

National Adequate Wiring Bureau Report: Mr. A. E. Schanuel, Field Representative

Counsel's Report: Dana T. Ackerly, Esq.

Noon

Luncheon—Grand Ball Room

Address: Mr. Lemuel L. Boulware, Operations Vice Chairman, War Production Board—Washington

Special Army Program (Sponsored by the War Department)

Address of Welcome: General, Commanding Sixth Service Command.

A message from Under Secretary of War Hon. Robert P. Patterson, delivered by his personal representative — Lt. Colonel Keith L. Morgan, A.U.S. Chief, Management Branch, Industrial Services Division.

"An Intelligence talk on Japanese Strength" by Colonel Warren J. Clear, Outstanding U. S. Army officer and veteran of The Philippines, Corregidor and Bataan.

Noon

Army Motion Picture (Latest Film Communique)

Salute To Our World War II Soldiers

WPB Panel:

Members of the Panel:—

Mr. Dean C. Gallagher, Deputy Director, Products Distribution Branch, Wholesale and Retail Trade Division, Office of Civilian Requirements

Mr. Julian A. Hawks, Chief, Electrical Section, Products Distribution Branch, Wholesale and Retail Trade Division, Office of Civilian Requirements.

Special Address:

"Potential Appliance Markets After The War," by Mr. Willard Hall, Vice President, Times Appliance Company, New York, N. Y.

Afternoon

Caucuses for Nomination of Executive Committeemen

Evening

Meeting of Executive Committee with Chairmen of Commodity Committees

Saturday—April 22

Morning

Convention Session—For Members

Report on Operating Cost Study—Mr. L. M. Nichols, Chairman, Technical Sub-Committee of Operating Cost Committee

Report from Organization Meetings of Electrical Appliance Distributors Division

Committee Reports and Discussion

Meetings of Atlantic and Central Divisions

Afternoon

Convention Session—for Members and guests

Report of Resolutions Committee

Report on Executive Committee Elections

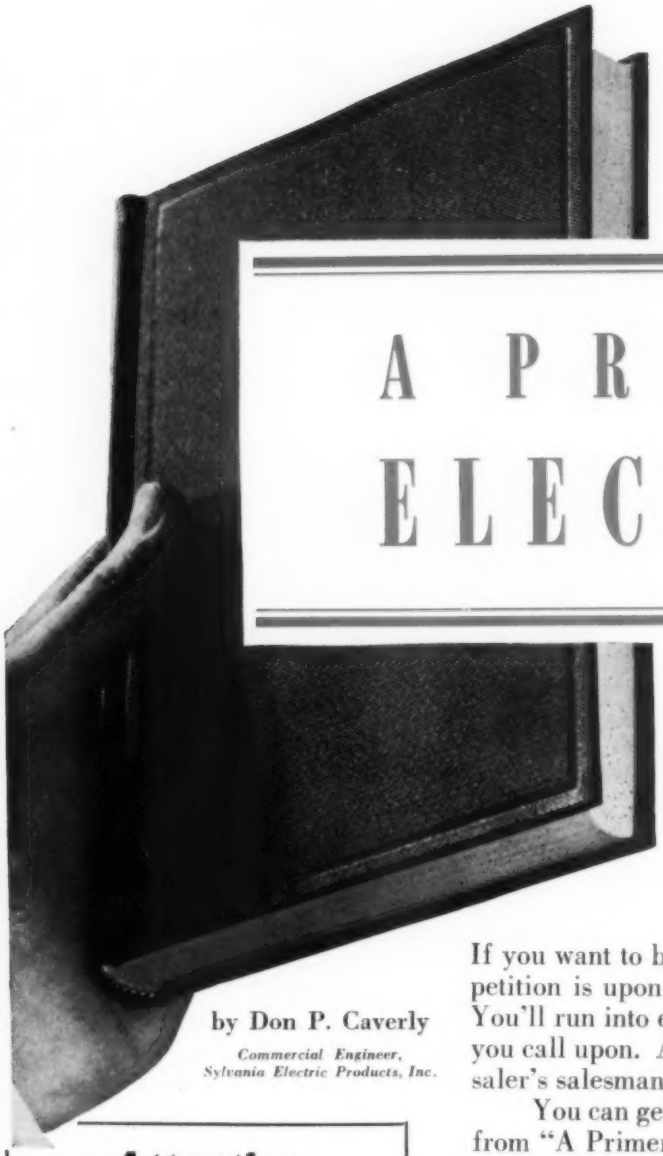
Report of Post-War Planning Committee, Mr. Herber Metz, Chairman

Post-War Panel, Mr. Herbert Metz, presiding

(Panel members will be manufacturers—to be announced)

ADJOURNMENT

Organization Meeting of Executive Committee



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The Wholesaler's Basic Market

ELECTRICAL CONTRACTORS • MOTOR REPAIR SHOPS

STATE	Number of Concerns
REGION I — NEW ENGLAND	**1,443**
Maine	137
New Hampshire	98
Vermont	52
Massachusetts	708
Rhode Island	103
Connecticut	345
REGION II — MIDDLE-ATLANTIC	**3,943**
New York	1,988
New Jersey	584
Pennsylvania	1,371
REGION III — EAST NORTH CENTRAL	**3,152**
Ohio	789
Indiana	375
Illinois	932
Michigan	580
Wisconsin	476
REGION IV — WEST NORTH CENTRAL	**1,534**
Minnesota	390
Iowa	303
Missouri	294
North Dakota	74
South Dakota	74
Nebraska	161
Kansas	238
REGION V — SOUTH ATLANTIC	**1,247**
Delaware	38
Maryland	272
District of Columbia	135
Virginia	146
West Virginia	101
North Carolina	180
South Carolina	64
Georgia	45
Florida	266
REGION VI — EAST SOUTH CENTRAL	**444**
Kentucky	112
Tennessee	150
Alabama	106
Mississippi	76
REGION VII — WEST SOUTH CENTRAL	**796**
Arkansas	55
Louisiana	131
Oklahoma	162
Texas	448
REGION VIII — MOUNTAIN	**384**
Montana	64
Idaho	45
Wyoming	29
Colorado	114
New Mexico	33
Arizona	41
Utah	40
Nevada	18
REGION IX — PACIFIC	**1,145**
Washington	166
Oregon	129
California	850
TOTAL — UNITED STATES	**14,088**

Data compiled by McGraw-Hill Publishing Co.

The Wholesaler's Basic Market

DWELLINGS • RETAIL STORES • FACTORIES

STATE	Dwelling Units 1940	Retail Stores 1939	Factories 1939
REGION I — NEW ENGLAND	2,201,647	121,888	16,135
Maine	218,999	13,455	1,210
New Hampshire	133,010	7,435	806
Vermont	92,432	5,423	717
Massachusetts	1,120,524	59,217	9,006
Rhode Island	187,795	10,485	1,460
Connecticut	448,887	25,873	2,936
REGION II — MIDDLE ATLANTIC	7,279,087	412,819	56,300
New York	3,662,618	209,425	34,514
New Jersey	1,100,585	68,851	7,984
Pennsylvania	2,515,884	134,543	13,802
REGION III — EAST NORTH CENTRAL	7,276,297	364,508	40,419
Ohio	1,898,212	93,041	10,070
Indiana	961,500	47,317	4,338
Illinois	2,193,114	109,132	12,980
Michigan	1,396,206	67,414	6,313
Wisconsin	827,265	47,604	6,718
REGION IV — WEST NORTH CENTRAL	3,689,070	197,909	14,947
Minnesota	728,513	40,448	4,008
Iowa	701,920	39,024	2,670
Missouri	1,068,811	53,196	4,796
North Dakota	152,171	8,549	351
South Dakota	165,430	9,817	468
Nebraska	360,811	19,330	1,160
Kansas	511,414	27,545	1,494
REGION V — SOUTH ATLANTIC	4,279,740	199,371	17,316
Delaware	70,572	4,544	429
Maryland	466,002	25,566	2,893
District of Columbia	173,709	6,893	497
Virginia	627,659	29,610	2,580
West Virginia	444,889	18,928	1,130
North Carolina	789,566	33,826	3,223
South Carolina	434,922	18,520	1,331
Georgia	752,286	32,870	3,150
Florida	520,135	28,614	2,083
REGION VI — EAST SOUTH CENTRAL	2,622,810	101,065	7,279
Kentucky	698,604	30,919	1,640
Tennessee	715,425	28,198	2,289
Alabama	673,914	23,916	2,052
Mississippi	534,867	18,032	1,298
REGION VII — WEST SOUTH CENTRAL	3,377,534	159,768	10,021
Arkansas	495,841	20,328	1,178
Louisiana	592,595	25,469	1,861
Oklahoma	610,424	28,722	1,606
Texas	1,678,674	85,249	5,376
REGION VIII — MOUNTAIN	1,120,694	57,459	4,011
Montana	159,977	8,481	585
Idaho	141,765	6,804	549
Wyoming	69,357	4,113	309
Colorado	316,112	16,785	1,298
New Mexico	129,504	6,617	272
Arizona	131,189	6,242	332
Utah	139,496	6,372	560
Nevada	33,294	2,045	106
REGION IX — PACIFIC	3,014,746	155,568	17,816
Washington	537,968	26,682	3,239
Oregon	337,731	16,458	2,248
California	2,139,047	112,428	12,329
TOTAL — UNITED STATES	34,861,625	1,770,355	184,244

Data from U. S. Bureau of the Census

The Wholesaler's Basic Market

WIRED HOMES

STATE	Total Jan. 1, 1944	Urban	Rural Non-Farm	Rural Farms on Power Lines*
REGION I — NEW ENGLAND	**2,236,000**	**1,690,765**	**442,586**	**102,649**
Maine	195,800	84,309	86,599	24,892
New Hampshire	131,200	72,615	45,497	13,088
Vermont	78,400	29,457	32,519	16,424
Massachusetts	1,161,100	1,017,833	120,428	22,839
Rhode Island	190,400	171,087	17,003	2,310
Connecticut	479,100	315,464	140,540	23,096
REGION II — MIDDLE ATLANTIC	**6,872,000**	**5,405,344**	**1,148,700**	**317,956**
New York	3,485,900	2,897,788	437,987	150,125
New Jersey	1,140,100	906,869	202,180	31,051
Pennsylvania	2,246,000	1,600,687	508,533	136,780
REGION III — EAST NORTH CENTRAL	**6,665,000**	**4,754,270**	**1,216,052**	**694,678**
Ohio	1,780,000	1,287,973	312,391	179,636
Indiana	841,600	533,448	190,362	117,790
Illinois	1,940,900	1,562,952	270,423	107,525
Michigan	1,375,200	921,784	278,143	175,273
Wisconsin	727,300	448,113	164,733	114,454
REGION IV — WEST NORTH CENTRAL	**2,585,700**	**1,585,013**	**654,246**	**346,441**
Minnesota	573,000	376,712	125,973	70,315
Iowa	515,600	279,298	135,706	100,596
Missouri	738,300	533,760	151,163	53,377
North Dakota	74,100	28,005	33,007	13,088
South Dakota	77,800	31,688	30,715	15,397
Nebraska	241,100	127,689	70,555	42,856
Kansas	365,800	207,861	107,127	50,812
REGION V — SOUTH ATLANTIC	**2,763,100**	**1,625,030**	**821,140**	**316,930**
Delaware	63,000	36,727	20,884	5,389
Maryland District of Columbia	573,400	436,836	109,619	26,945
Virginia	429,200	244,388	128,098	56,714
West Virginia	294,800	125,033	138,972	30,795
North Carolina	447,500	207,539	152,709	87,252
South Carolina	203,500	89,268	78,561	35,671
Georgia	386,500	225,997	105,329	55,174
Florida	365,200	259,242	86,968	18,990
REGION VI — EAST SOUTH CENTRAL	**1,253,500**	**739,517**	**344,355**	**169,628**
Kentucky	367,900	213,317	107,364	47,219
Tennessee	396,400	250,025	96,847	49,528
Alabama	324,000	188,429	93,228	42,343
Mississippi	165,200	87,746	46,916	30,538
REGION VII — WEST SOUTH CENTRAL	**1,818,600**	**1,199,880**	**423,943**	**194,777**
Arkansas	178,000	101,805	52,586	23,609
Louisiana	300,000	209,975	68,469	21,556
Oklahoma	324,600	213,721	75,208	35,671
Texas	1,016,000	674,379	227,680	113,941
REGION VIII — MOUNTAIN	**815,900**	**440,563**	**250,105**	**125,232**
Montana	96,000	47,692	32,141	16,167
Idaho	112,500	45,251	32,862	34,387
Wyoming	43,400	21,381	14,577	7,442
Colorado	233,900	146,724	59,204	27,972
New Mexico	61,000	33,425	19,106	8,469
Arizona	98,500	46,403	41,832	10,265
Utah	144,100	87,866	38,270	17,964
Nevada	26,500	11,821	12,113	2,566
REGION IX — PACIFIC	**2,990,200**	**2,070,376**	**621,885**	**297,939**
Washington	522,000	303,644	140,086	78,270
Oregon	283,700	156,623	75,239	51,838
California	2,184,500	1,610,109	406,560	167,831
TOTAL — UNITED STATES	**28,000,000**	**19,510,758**	**5,923,012**	**2,566,230**

*Not including farm homes equipped with individual plants.

Data from the Edison Electric Institute and the U. S. Bureau of the Census

The Wholesaler's Basic Market

OFFICE BUILDINGS • HOTELS

STATE	Office Buildings 1939	Large Hotels 1939	Small Hotels 1939
REGION I — NEW ENGLAND	**3,420**	**429**	**1,222**
Maine	124	111	325
New Hampshire	179	32	157
Vermont	50	37	130
Massachusetts	1,820	162	362
Rhode Island	269	19	56
Connecticut	978	68	192
REGION II — MIDDLE ATLANTIC	**3,002**	**1,114**	**3,828**
New York	1,625	627	1,746
New Jersey	461	239	689
Pennsylvania	916	248	1,393
REGION III — EAST NORTH CENTRAL	**4,456**	**1,322**	**3,369**
Ohio	1,986	262	660
Indiana	532	136	405
Illinois	792	510	810
Michigan	761	281	745
Wisconsin	385	133	749
REGION IV — WEST NORTH CENTRAL	**1,743**	**811**	**3,162**
Minnesota	358	225	666
Iowa	337	128	443
Missouri	703	219	722
North Dakota	31	40	257
South Dakota	47	36	197
Nebraska	128	80	355
Kansas	139	83	522
REGION V — SOUTH ATLANTIC	**1,614**	**700**	**2,185**
Delaware	22	3	37
Maryland District of Columbia	231	96	210
Virginia	224	82	326
West Virginia	214	65	242
North Carolina	186	97	295
South Carolina	93	39	134
Georgia	212	71	306
Florida	432	247	635
REGION VI — EAST SOUTH CENTRAL	**526**	**220**	**974**
Kentucky	163	62	316
Tennessee	193	69	271
Alabama	126	49	223
Mississippi	44	40	164
REGION VII — WEST SOUTH CENTRAL	**869**	**466**	**2,507**
Arkansas	98	59	297
Louisiana	126	39	272
Oklahoma	213	112	622
Texas	432	256	1,316
REGION VIII — MOUNTAIN	**856**	**409**	**1,984**
Montana	67	75	375
Idaho	91	42	202
Wyoming	29	27	176
Colorado	186	138	612
New Mexico	22	19	169
Arizona	16	43	156
Utah	77	42	182
Nevada	24	23	112
REGION IX — PACIFIC	**1,689**	**1,582**	**3,179**
Washington	448	319	606
Oregon	187	154	339
California	1,054	1,108	2,234
TOTAL — UNITED STATES	**18,175**	**7,053**	**22,410**

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The Wholesaler's Basic Market

EDUCATIONAL INSTITUTIONS

STATE	Grade Schools 1939	High Schools 1939	Colleges	Private Schools
REGION I — NEW ENGLAND	**12,546**	**1,123**	**85**	**557**
Maine	4,882	219	9	73
New Hampshire	1,768	119	6	40
Vermont	2,200	99	7	29
Massachusetts	2,307	499	38	189
Rhode Island	400	54	5	23
Connecticut	989	133	20	203
REGION II — MIDDLE ATLANTIC	**22,845**	**2,452**	**171**	**661**
New York	10,428	984	70	374
New Jersey	1,720	200	26	131
Pennsylvania	10,697	1,268	75	156
REGION III — EAST NORTH CENTRAL	**37,557**	**4,333**	**200**	**278**
Ohio	9,050	1,275	50	57
Indiana	3,024	889	36	33
Illinois	10,979	797	55	129
Michigan	7,304	875	36	35
Wisconsin	7,200	497	23	24
REGION IV — WEST NORTH CENTRAL	**52,879**	**4,659**	**217**	**189**
Minnesota	7,840	472	28	35
Iowa	9,800	1,142	65	55
Missouri	9,500	989	47	50
North Dakota	5,622	231	6	13
South Dakota	5,066	431	12	6
Nebraska	7,030	623	19	14
Kansas	8,021	771	40	16
REGION V — SOUTH ATLANTIC	**35,177**	**3,494**	**243**	**376**
Delaware	235	51	3	14
Maryland District of Columbia	1,548	236	50	108
Virginia	6,685	514	36	70
West Virginia	5,260	422	15	11
North Carolina	7,097	946	45	39
South Carolina	4,590	315	34	18
Georgia	7,462	613	46	35
Florida	2,300	397	14	81
REGION VI — EAST SOUTH CENTRAL	**24,483**	**2,355**	**125**	**160**
Kentucky	7,458	749	32	42
Tennessee	6,007	551	42	50
Alabama	6,431	474	21	51
Mississippi	4,587	581	30	17
REGION VII — WEST SOUTH CENTRAL	**26,910**	**2,961**	**156**	**117**
Arkansas	5,000	660	23	16
Louisiana	3,649	434	19	19
Oklahoma	6,315	898	32	12
Texas	11,946	969	82	70
REGION VIII — MOUNTAIN	**12,319**	**1,198**	**47**	**98**
Montana	3,531	260	8	4
Idaho	1,683	204	6	13
Wyoming	1,100	27	1	4
Colorado	3,194	266	14	14
New Mexico	1,400	166	5	10
Arizona	450	73	3	45
Utah	669	161	9	8
Nevada	292	41	1	0
REGION IX — PACIFIC	**5,482**	**1,213**	**115**	**305**
Washington	2,320	338	18	34
Oregon	2,465	307	15	15
California	6,697	568	82	256
TOTAL — UNITED STATES	**230,198**	**23,788**	**1,359**	**2,741**

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IN CANADA: DOMINION RUBBER CO., LTD.

The Wholesaler's Basic Market

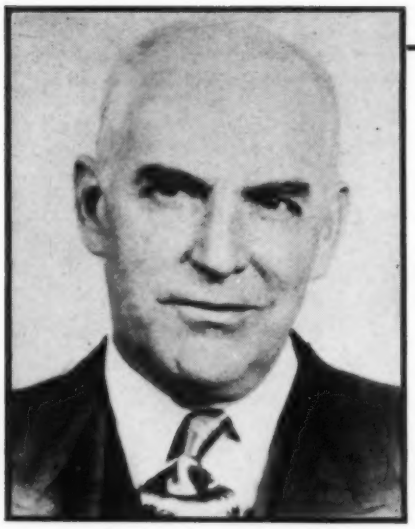
APPLIANCE SATURATION

APPLIANCE	Number of Homes Without January 1944	Percentage of Homes Without January 1944	1940 Number Sold	1941 Number Sold
CLEANERS, VACUUM:				
Floor Type	14,293,000	51.0	1,384,839	1,734,369
Hand Type	24,928,000	89.0	358,604	383,481
CLOCKS	10,490,000	37.5	3,600,000	5,400,000
FANS:				
Ceiling	*	*	27,950	30,590
Desk and Bracket	*	*	1,681,900	1,984,650
Attic	*	*	20,000	22,100
Other Vent. up to 16 in	*	*	107,000	116,800
FLASHLIGHTS:				
Cases	*	*	11,000,000	15,000,000
Battery Cells	*	*	195,000,000	300,000,000
HEATERS, RADIATORS	22,477,000	80.3	528,000	564,000
HEATING PADS	21,614,000	77.2	931,500	1,117,800
HOT PLATES	23,184,000	82.8	415,000	547,800
IRONERS	26,062,000	93.1	175,466	259,668
IRONS (total sold)	2,035,000	7.3	5,171,000	5,585,000
Automatic	*	*	2,597,000	2,900,000
Non-automatic	*	*	2,574,000	2,685,000
LAMPS, INCANDESCENT:				
(total — all types)	*	*	1,115,473,000	1,332,135,000
Residential	*	*	221,733,000	
Commercial	*	*	272,897,000	726,603,000
Industrial	*	*	99,333,000	
Miniature	*	*	521,510,000	595,532,000
MIXERS	*	*	460,000	510,000
OIL BURNERS (total)	*	*	302,868	321,564
Conversion	*	*	249,072	237,779
Boiler Burner Units	*	*	26,614	32,734
Direct Fired Air Cond. Units	*	*	27,632	51,051
OIL SPACE HEATERS	*	*	390,000	446,000
PERCOLATORS:				
Metal	17,650,000	63.0	675,000	614,250
Glass			1,198,000	1,327,000
RADIO RECEIVERS	6,044,000	16.5	11,531,000	13,700,000
RANGES	24,433,000	87.3	450,000	728,000
REFRIGERATORS Household	8,136,000	29.1	2,600,000	3,500,000
ROASTERS	26,394,000	94.3	260,000	290,000
ROOM COOLERS	*	*	23,000	30,750
SANDWICH TOASTERS	*	*	805,000	869,400
SHAVERS, DRY	*	*	900,000	1,100,000
STOKERS:				
Residential	*	*	144,758	182,956
Apt. House Small Commercial	*	*	5,249	5,860
TOASTERS (total)	11,591,000	41.4	2,272,000	2,640,840
Automatic	*	*	960,000	1,237,000
Non-Automatic	*	*	1,312,000	1,403,840
WAFFLE IRONS	21,476,000	76.7	740,000	777,000
WASHERS:				
Electric	10,662,000	38.1	1,454,831	1,892,435
Gas Engine	*	*	97,835	122,000
WATER HEATERS, Storage	26,916,000	96.1	125,000	205,000

*Figures are not available.
Data copyrighted by "Electrical Merchandising"

When That "Backlog"-Spending Boom Breaks—

Wholesalers And Contractors



By Frank M. Hydon*

ONE of the interesting things about our American Way of Life is the fact that one never knows what may happen tomorrow. This gives a zest to living, and an interest, possibly not found in foreign systems of government. The business man obtains under this system more than a monetary profit from his business.

As an example, it was recently my pleasure and intellectual profit to have dinner with the genial editor of WHOLESALER'S SALESMAN and the president of the National Electrical Wholesalers Association, Mr. Lyle Fife. As the direct result of that meeting I was asked to write my views on the question—*How can the electrical contractor and wholesaler cooperate in the postwar era?* This request did not strike me too seriously at the time—but when it was followed up with a long distance phone call—*Where is it!!* —I then, and only then, realized the fact that either my neck was out or my friends had me over a barrel. But contractors—fully realizing that their nether parts must be callous —are hard men who can always take it.

Two things strike me about the title, first, it contains a capricious word. Second, *we know too little* about the post-war era and how it may differ from the pre-war era—or even from today. However, in considering the PWE (á la Washington) we must realize that it may be a long way off, but, that things that would be good then, *are* good today. Conditions that work today will work tomorrow, with slight modifications that may occur and over which we presently have no control. Let us consider *cooperate* by going directly to the dictionary: The act of working or operating together to one end.

Before developing any points on which we might work or operate to better advantage it would be logical that we must develop a definite purpose or *end result.* If we permit ourselves the pleasure of thinking that we can lay down any specific *end results* we immediately confront ourselves with factors over which, at present, we have no control—but which, as individuals and severally, we are duty bound to explore.

I like to think that a common ground of understanding for an end result might be found in the thought that all of us, both wholesalers and contractors, are definitely in favor of a *private enterprise system* that is subject to improvement in the future as it has been in the past. I like to think that intelligent people realize that nothing is permanent but change . . . that it is the changes sought by the individual that have created the greatest strength in the private enterprise system. In other words I believe that we are for the known *American Way of Life,* with constant improvement as an *end result.*

Bringing this down to our two economic levels . . . the wholesaler and contractor . . . in the electrical industry, I feel that we seek means of being mutually beneficial in the arrangements and methods of conducting our several businesses, that will first help us to make our individual business more profitable; but secondly, which will never react in any manner to cause the general public's interest to be in jeopardy. **In other words we should seek means that will lower costs to the public while they are producing a profit for the individual, and—I hold that this can be done without demanding any new**

*Hydon-Brand Company
Detroit, Michigan*

Speaking of Post War Selling

Must Work As A Team

structures in our economic system, and many of the methods formerly used could be helpful if directed toward the common good, rather than toward the particular good of the individual.

Personal criticism is a great thing —it always helps to improve conditions. As an example let me cite an instance to show that the cooperation of which I write must start WITHIN THE GROUP, before it can well be on its way to working within TWO GROUPS. At our contractors' local chapter meeting several days ago I asked all those interested in this idea of cooperation between the contractors and wholesalers in the PWE to jot down their ideas or views and mail them to me. It looked like a wealth of material should have flooded my desk—but up to this writing I have received one reply—and that man will discover in the thoughts that follow some of his ideas. He will be happy to know that I, too, agree with him. That is a profit which, while it may never reflect itself upon his balance sheet, will reflect itself in his own mind—from where all profit stems. **He cooperated within his group.** His thinking will help **him** and one day will help his **industry.**

So we start with ONE STRIKE on the contractors of my locality. We all want things to be better—can see room for improved conditions — are capable of helping—but to gain any objective *demands* internal cooperation and often is best brought out by internal personal criticism.

What Wholesalers Can Do

Getting down to brass tacks let us list a few points whereby I have heard that the wholesaler might improve matters and put the contractors in a more happy frame of mind. I must be brief, so will avoid personal comment upon the individual points until a later conclusion.

(1). Stop underselling the contractor . . . particularly in the industrial market.

(2). Do not solicit, or better still, do not sell wiring material to the small industrial plants who do not have a permanent electrical maintenance department.

(3). Use *fewer* order takers—employ *more* material expeditors.

(4). Eliminate quoting lump sum prices to contractors for all materials and equipment for a single job.

(5). Try to get some particular product that you handle mentioned in the specifications for a job—rather than rush in with a cut price when your product is not mentioned in the specification.

(6). Carry in stock some of the so-called specialty items, such as type FD fittings, special solderless connectors and lugs, and popular explosion-proof fittings, etc.

(7). Discourage the practice employed by some jobber's salesmen (possibly true of some manufacturer's representatives also) of finding out on what jobs a contractor is figuring and then hurrying to one or more other contractors with this information—and getting him or them acquainted with the owner. (Salesmen should be trained to hold inviolate any information obtained from a contractor in any manner, that might injure that contractor.)

(8). Establish a uniform credit policy, stating final discount date.

(9). Establish a limitation date on automatic shut off of credit. (This sounds like a tough one.)

(10). Use trade names in invoicing materials in place of catalog numbers or use both catalog numbers and trade names.

(11). Give more thought to advertising in the PWE.

(12). Where feasible and good

DID YOU NOTICE

...the advertisement below? So did a lot of other people. It's one of a series that's been getting leading attention in leading national magazines. The campaign is doing double service for you and your dealers . . . by keeping "Eveready" batteries before the public eye . . . at the same time explaining the very good reasons for the present shortage.

LIGHTER MOMENTS with fresh Eveready Batteries

"All we need is a bulldozer and a company of engineers and we could straighten it".

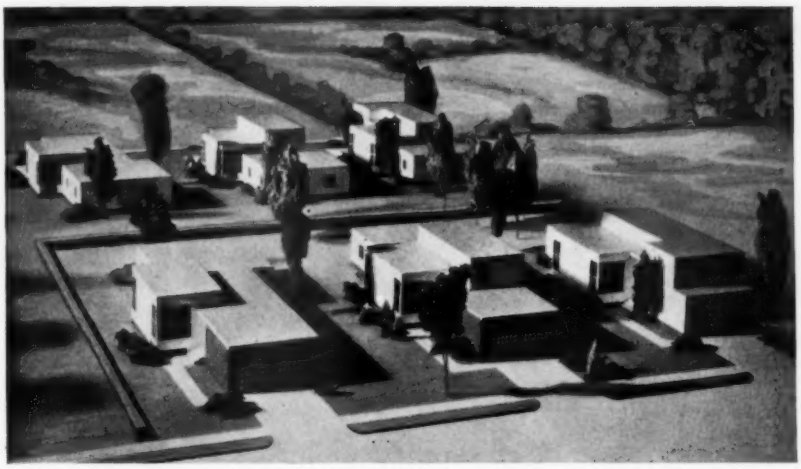
"EVEREADY" flashlight batteries are being shipped to every front; most of the rest go to essential war industries. So you'll understand why your dealer may not be able to supply you right now!

No one else can give the pint of blood you owe the Red Cross. Report to your nearest station now!

FRESH BATTERIES LAST LONGER . . . Look for the date line ⟶

The word "Eveready" is a registered trade-mark of National Carbon Company, Inc.

EVEREADY
TRADE-MARK



practice, return to pre-war standards.

What Contractors Can Do

On the other side of the picture we might point out that:

Some few years ago this cooperative idea seemed to work fairly well. At that time several wholesalers complained that they did not get any contractor business, and so were forced to go out and sell direct to the industrial or other consumers. To overcome this objection the contractors tried to spread their orders over more sources of supply, and this did create a much better feeling between the two groups.

Contractors should buy everything they possibly can through the wholesaler. Manufacturer to wholesaler to contractor to consumer has been a sound economic ladder and if lived up to religiously would go a long way toward reducing costs and achieving the goal of better cooperation to the common end.

Contractors should have joint meetings at regular intervals for the purpose of interchanging ideas on how *they* can assist the wholesaler in putting suggestions into operation—and not merely to build up a list of points wherein things could be better. In other words the contractor might say *This point is a good thing for the industry—how can I assist in getting it into operation.* The criticism is insufficient—it must include suggestions for operation.

It is my considered judgment that if all of the points brought forth before were to operate successfully we still would be far short of the point to which our great industry can and must reach in the PWE—and in conclusion I would point out that my statement of insufficiency rests on the fact that we are not trying to arrive at a point where we *have been*—but that this great industry, upon which all other industries rest, must become of age.

Much Room For Education

This becoming of age or something, which we were not before, can only be reached through a slow process of education—not alone the formal type reached in schools and colleges which we have had before, but the type that men achieve in the normal growing-up process during the time that they earn their living in business or trade.

This future that *you too see* takes us outside of our title of cooperation between two economic levels of a great industry and thrusts us into a cooperation between *all levels* of that industry.

Certainly we must continue to seek cooperative advantages between ourselves and our great friends, the electrical wholesalers, but I for one hold that while we do this we must now, more than ever before, seek *industry improvement* from the contacts and thinking of the industry in total.

We must encourage the younger men in our individual employ to see in their jobs more than a paycheck—we must encourage them to a realization that as we grow older they too advance—that they must prepare themselves *now* to do a better job in the future than we have done in the past—but that to do this they need the wise council of other older men in their industry—who, while admitting that their jobs have not been perfect, have still produced the greatest country the world has ever seen.

We must pride ourselves upon a job well done—always realizing that it could have been better—always appreciating that if we put our wisdom in the path of youth that they will accept it and, adding to it their boundless energy, will produce *an American way of life* greater than any that we have known. Surely we face the dawn of a *new era*, and in its achievement, surely we know that **Cooperation Between Electrical Wholesalers and Contractors is a MUST.**

When That "Backlog"-Spending Boom Breaks—

Better Wiring of New and Old Homes

"Electric Homes," package units, and larger circuits for appliance loads will build up huge demand for home wiring materials. Estimated million new homes per year expected to be equaled in cost by modernizing and repair needs

I. W. Clark*

THE need for one million housing units or more annually in this country of ours, for a period of at least ten years, is well established. This is necessary to keep American housing standards on a basis with the balance of our living economy. Annual net family increases, plus replacements of units destroyed by catastrophe, or demolished as sub-standard or for commercial expansion, require about 900,000 new units annually. But for the past ten years our building rate has been at the yearly average of only 350,000 units, so that a huge backlog has been accumulating at the rate of 550,000 needed units per year.

Need, however, is one thing. Converting this need into actual houses is quite another. It will require the concerted effort of the entire housing industry to produce a better package—a better living unit—one that will appear to the consumer on such irresistibly strong basis as to compete against the automobile, the delayed vacation, fur coats, jewelry, and a thousand other consumer items which will be fighting strenuously for a share of the surplus consumer dollars that will exist at the end of the war period.

To evaluate properly the probable actual housing construction, however, certain premises must be established:

(1) That the peak postwar year will probably be 30 percent above production in 1940. (2) That all monetary value references are based on 1940 dollars. (3) The starting point for housing construction projections will be the end of the war with both Germany and Japan. While, undoubtedly, there will be some relaxation of present housing restrictions, possibly before the end of the German phase of the war, and very certainly, between the ending of the German phase and the final blow to Japan, the number of units that will be so constructed will be comparatively small. The importance of the units built during this interim will lie in the stimulation which they will give to the housing industry as it prepares itself for the big task of re-housing America after the war is finally won.

First Five Year Housing Projection

A careful check of data compiled by the country's leading authorities indicates that housing construction can be expected to develop on the following approximate schedule:

(1) 1st year—350,000 to 400,000 units.
(2) 2nd year—500,000 to 600,000 units.
(3) 3rd year—700,000 to 800,000 units.
(4) 4th year—900,000 units.
(5) 5th year—1,000,000 units or more.

These figures are reasonable and within the ability of the housing industry to accomplish and the public to absorb.

New housing, however, is only a part of the story. When the war is over, fifteen years will have elapsed since there has been any important amount of modernization or repair. A crying need for fundamental repairs and a tremendous demand for modernization of our present housing structures have existed for many years. During the transition period from war to peace, repair and modernization should be the major factors in our housing efforts.

With proper stimulation, the number of dollars which will be spent in the first one or two years immediately following the war for modernization and repair will not only equal, but will probably exceed by from twenty-five percent to fifty percent, the number of dollars spent on new housing construction.

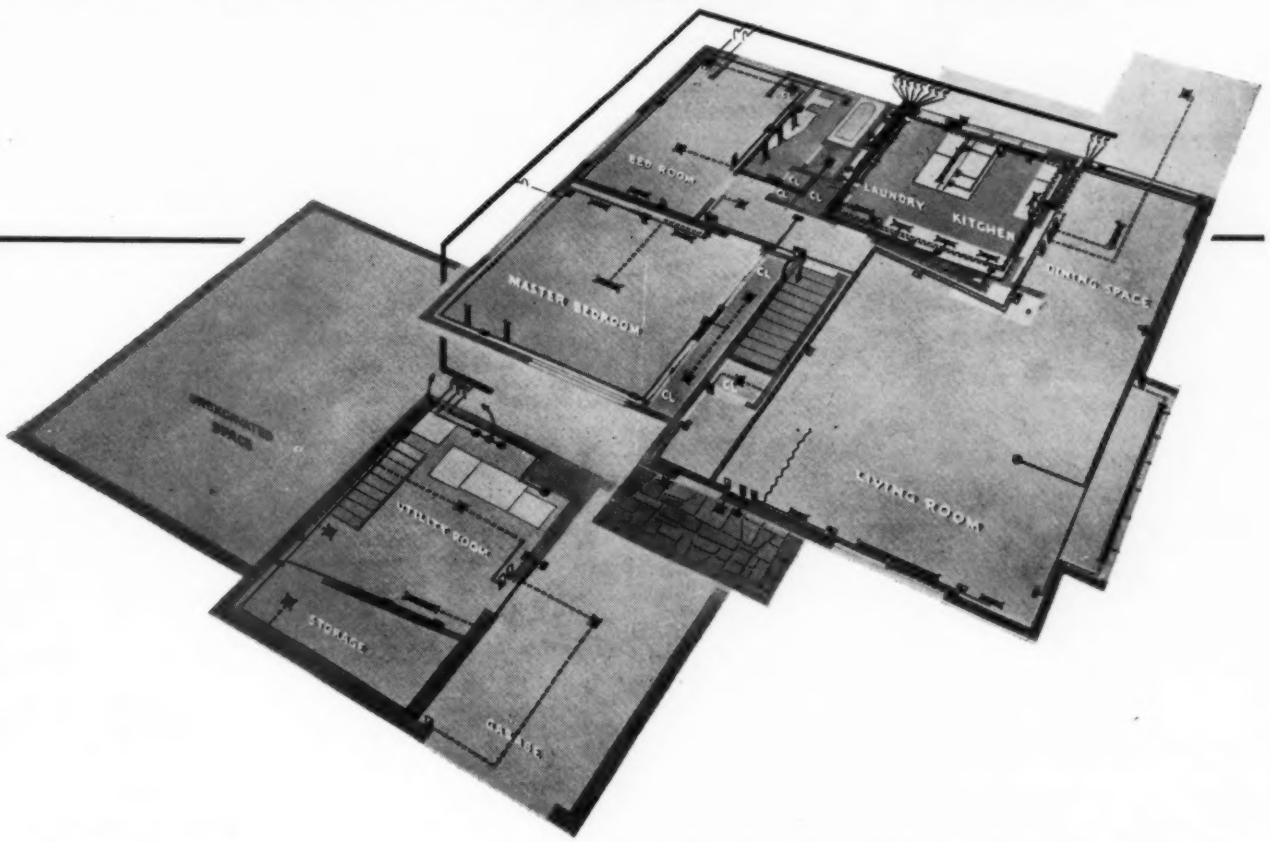
New housing construction of the magnitude just projected will require large volumes of permanent public works, such as—streets, sewers, water systems, sewerage disposal plants, playgrounds, schools—commercial and public buildings. This volume is estimated to be at least equal to the number of dollars invested in new housing. A great deal of this "heavy construction" should take place in advance of actual housing operations.

The actual potentials of the three phases of the total housing market, the new, the modernization, and the permanent public works and commercial buildings, represent a major opportunity for the electrical industry. It will be the first peak housing cycle in which electricity has played the important part to which it is en-

*Manager, Better Homes Dept. Westinghouse Elec. & Mfg. Co.

Speaking of Post War Selling

Offers Immediate Big Boost to Sales



titled through the benefits that applied electricity can render.

The success of our participation in postwar housing, in fact in all electrical merchandising, will depend upon just how well we promote our wares, upon our close cooperation with the housing industry and upon how well we do our jobs.

The Electrical Home of Tomorrow

All signposts indicate that new homes of 194X will be more truly electrical. Strong indications point toward a greater use of electricity in existing homes. Both of these factors are based upon the following points:

(1) Electrical energy has been a major factor in the vast and amazing production of war goods and materials. Its production has been greatly expanded. As we turn from war to peace, vast amounts of energy will be available to play a *major* part in raising the *standards* of American living.

(2) Never in history has man had as flexible a source of power and energy as that of electricity.

(3) The history of rate structures over the past two decades has been one of greater service and lower cost to the ultimate consumer. Electrical power is the least expensive of all "essential household services."

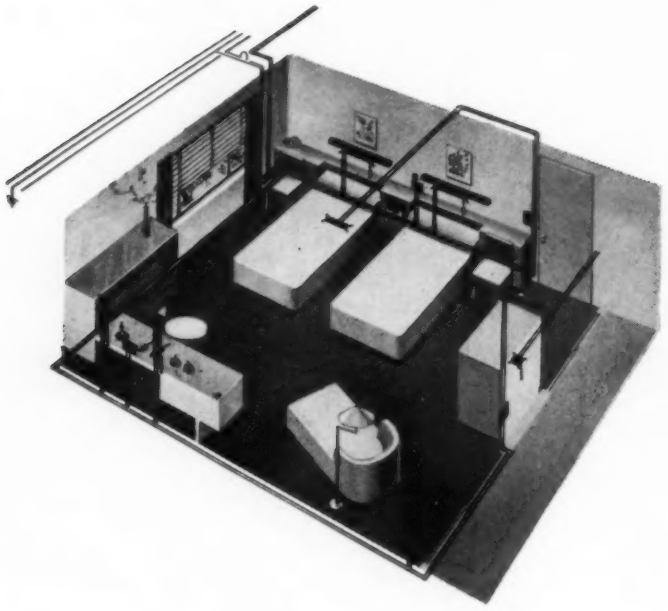
Yes! The Home—either new or modernized—of the late 40's and 50's can be completely electrical!

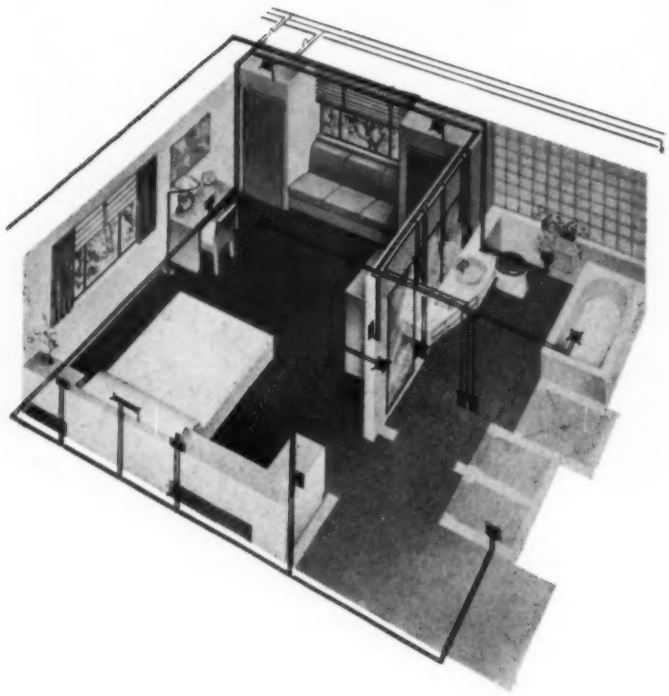
Kilowatt Hour Potential

It is estimated after careful study that the average housing unit of 194X will have an electrical consumption potential of 10,000 kilowatt hours. This is not a guess, but is based upon sound facts. Think of it! In the short space of twenty-odd years the use of electricity in the home has grown from a few lamp bulbs, a fan, an iron, an occasional range and a toaster, to approximately forty different items to bring new comfort, new convenience—*better living*—to the American public.

For many years, complete electric kitchens have been promoted. This promotion has been a success. Thousands of complete installations are now in use to the gratification of their owners.

The technique of using a complete room with the electrical installations in their proper setting or a part of the whole room, with all of its beauty, its comfort, its convenience effectively displayed and known as *ensemble selling* is adaptable not only to the kitchen, but to the laundry and the utility room—yes, even to living rooms, bedrooms and baths. In fact,





ensemble promotions will apply to the entire home—the complete living unit in 194X.

The complete kitchen has in the past been considered to consist of a range and refrigerator, with possibly a dishwasher and disposal unit. Too little emphasis has been placed upon the better location and greater use of the roaster, coffee maker, toaster, electric mixer, waffle maker, kitchen ventilating fan, and the radio.

Too often the laundry is thought of in terms of washing machine and hand iron sales only. The modern laundry in the home of tomorrow will consist of a washer, a drier, an ironer, and a water heater. Obviously the value of promoting the sale of the complete laundry unit cannot be over-emphasized as a post-war merchandising policy.

The availability of such new products as ventilating and electronic devices which assure an air supply free from dust and with low bacteria count, the home freeze locker, plus the heating and cooling system, make the utility room a profitable post-war market for the wholesaler and his retailers.

Visualize, if you will, the value of complete room ensemble promotions in your postwar appliance-merchandising program.

When the war is over, the crucial problem of all industry will be one of *reconversion with minimum unemployment*. This means that the manufacturer must get back into the production of the things that he was making when the clouds of war descended. It will be easier to convert the tools, the techniques, the materials and the production lines to 1942 products than to wait for the new tools, new techniques and new materials that entirely new products would require. It is, therefore, only sound, sensible thinking to anticipate that the equipment and materials will be the same or similar to those with which we built in 1942. To be sure, these may carry a new dress, but fundamentally, 1942 products should be anticipated for the immediate postwar period.

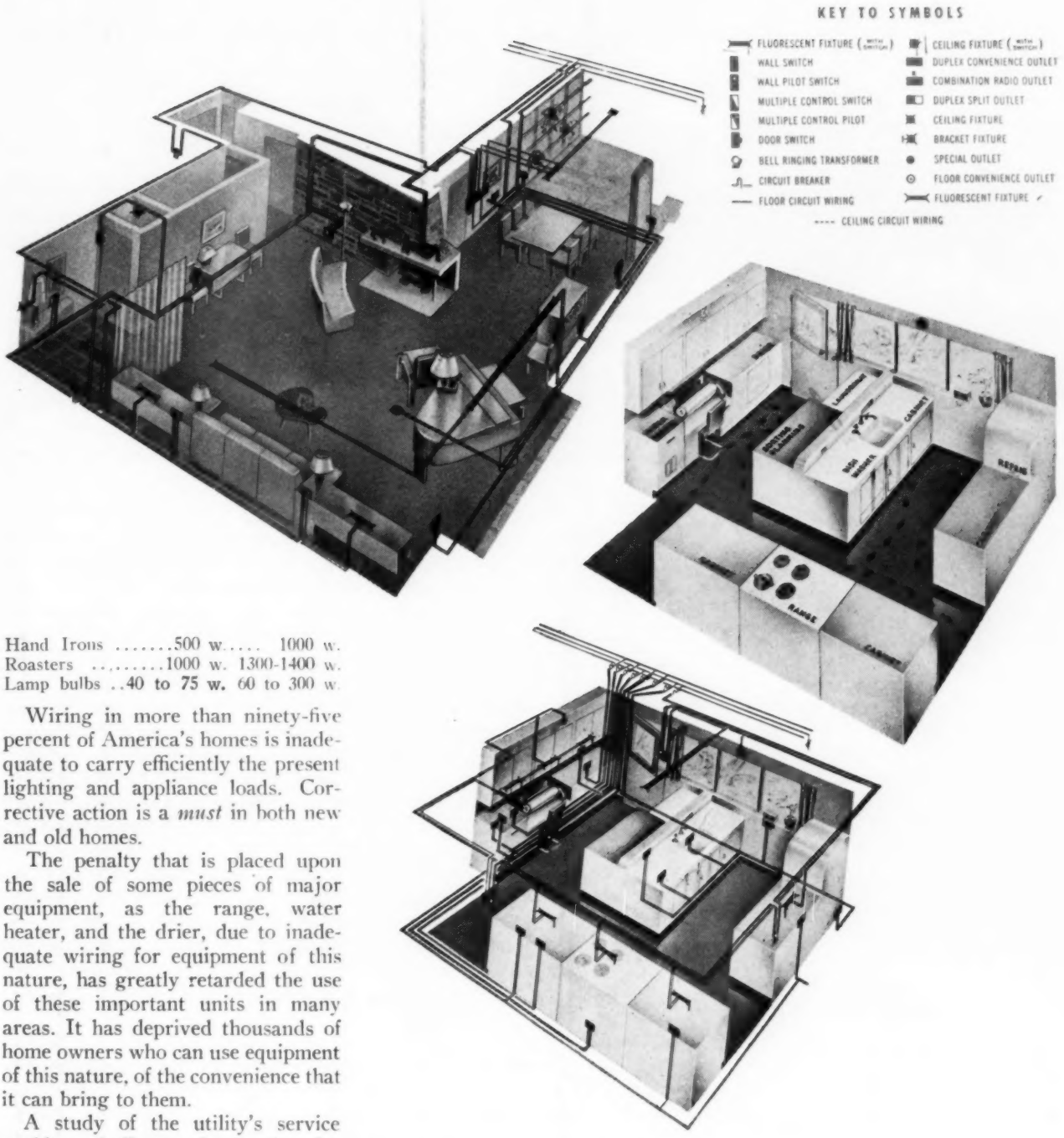
Please do not misunderstand, nor classify these remarks as reactionary. Many of the elements and materials and products which we have seen displayed across the pages of our forward-thinking publications and have heard expounded from the stage and press as "Items of Tomorrow" will eventually become a fact.

Product and equipment history, however, has been one of organized improvement year after year, through research and development, step by step. New materials require new techniques. New machinery calls for reasonable periods of testing before the reputable manufacturer is prepared to place them on the market for consumer use, and this evolutionary process applies to housing as well. You may be sure, however, that the period immediately following the war will be one of greatly accelerated development of all products and materials—both old and new.

A Major Bottleneck

However, a recent long and careful study has reaffirmed the existence of a serious and major bottleneck to the future home market for appliances and electric equipment. House wiring has not kept pace with increased appliance use, nor with the increased wattages as applied to individual units, such as:

	Originally	*1942*
Toaster	....500 w. or less....	1000 w.



Hand Irons .....500 w..... 1000 w.
Roasters .....1000 w. 1300-1400 w.
Lamp bulbs ..40 to 75 w. 60 to 300 w.

Wiring in more than ninety-five percent of America's homes is inadequate to carry efficiently the present lighting and appliance loads. Corrective action is a *must* in both new and old homes.

The penalty that is placed upon the sale of some pieces of major equipment, as the range, water heater, and the drier, due to inadequate wiring for equipment of this nature, has greatly retarded the use of these important units in many areas. It has deprived thousands of home owners who can use equipment of this nature, of the convenience that it can bring to them.

A study of the utility's service problems indicates clearly that far too high a percentage of service calls, including those of changing fuses, are caused not by defects or imperfect performances on the part of the appliances, but by poor wiring, overloaded circuits, insufficient outlets, and last but not least, improper and antique circuit protection.

Any program which has the purpose of selling more appliances to the average home must be accompanied by a well-organized wiring activity. It is hardly fair to promote the sale of a plug-in appliance and leave it in the *"laps of the gods"* or the wireman and the new owner to find a means of connecting this new unit to the electric system. Far too often the housewife accomplishes this with a three-way plug gadget purchased from the five and dime store, adding to the burden of an already overloaded circuit, and to your problems and ours.

Every appliance, be it of the small table variety or a major unit, has a wiring characteristic and should be sold with full knowledge to the purchaser that only when these characteristics are satisfied will the appliance render its intended efficiency.

The Adequate Wiring Bureau has struggled long with this problem. Some progress has been made but a great deal remains to be accomplished. It is an industry problem, the solution of which will require an *all out coordinated effort* on the part of every electrical wholesaler, every electrical manufacturer, every architect, every utility, every engineer and every contractor as well as bankers, insurance companies and Federal Financial Institutions, if the goal of the potential kilowatt hour consumption and the maximum use of appliances, is to be accomplished with accompanying complete safety to the public.

When That "Backlog"-Spending Boom Breaks—

Lighting Equipment Face Fantastic

By E. D. Stryker*

CARVED in stone near the entrance of the Archives Building in Washington are the words, "What Is Past Is Prologue."

All of our yesterdays are a prelude to today, and today is but a prologue for the progress of tomorrow. Perhaps there is no better way to forecast postwar lighting than to search the past for its prophecy of the future.

By a study of the record of thirty years of lighting progress, by comparing 1913 with 1943, perhaps we can answer some of the questions which you and your customers ask today about the lighting of tomorrow. We know that engineering advancement must continue.

We are certain that new design is a prerequisite of lighting progress. And, if the lighting of the future is to meet the needs of tomorrow, there is little doubt that closer cooperation between manufacturer and distributor is essential.

Lighting Engineering

Back in 1913, thirty-one years ago, five footcandles of general illumination was accepted in the better lighted interiors just as fifty or one hundred footcandle levels are today. At that time, a 100-watt vacuum tungsten lamp then newly introduced cost 80 cents and yielded approximately nine hundred lumens of light. Today the 100-watt fluorescent lamp gives 4200 lumens, or nearly five times as much as its first prototype.

The cost of current now averages less than half as much as it did in 1913 so that users get about ten times as much light for the same amount of money. Perhaps it's more than a coincidence that lighting standards, too, are about ten times what they were in those earlier days.

If one too hastily considers this progress as a sufficient basis for an estimate of the next thirty years, he might conclude that five hundred footcandles of artificial illumination could be as common as five was in 1913, or fifty in 1943. He might also conclude that the cost of lighting in 1973 would be one-tenth of what it is now.

Just as it applies to everything else, the law of diminishing returns applies to lighting. It is safer, therefore, to predict that the cost of lighting may reasonably be expected to decrease by about one-half in each decade, that average illumination levels may be expected to advance in approximately the same ratio.

This substantial improvement in light production pre-supposes that sometime in the future, certainly within the next thirty years, a radically new light source will be discovered or invented, something not now conceived of at all. This, too, seems very probable. The time to look for such inventions is when every possibility for improvement of existing sources seems to have been investigated and there are no avenues of opportunity left.

For instance, after tungsten lamps were placed on the market, lamp manufacture went through several years of worthwhile refinements. Then, just when we were about ready to write finis on tungsten lamp efficiency, out of our laboratories came the epoch-making, gas-filled lamp, and the whole process of refinement started all over again.

Fluorescent

When we appeared to be just about finished with the major improvements in gas-filled lamps, fluorescent appeared on the horizon. Today, it is still in the refinement stage.

Radical inventions usually cannot be foreseen; refinements usually can. What then are the possibilities of further refinement in fluorescent?

Possibly a fluorescent lamp that needs no ballast or starter, one that can be seated in a socket to have it light. Actually such a lamp would not be a refinement at all but a fundamental invention. An electric discharge source that does not require a ballast or choke to keep it from running away to short circuit is quite contrary to everything we

*General Electric Company
Nela Park, Cleveland, Ohio

Speaking of Post War Selling

and Lamp Sales Expansion Via Fluorescents

know today. Even the old carbon arc lamp had to have a ballast. On the other hand, a lamp which will start without help of a starting-switch already has been announced.

We can also look for continued improvements in fluorescent lamps from the standpoint of candlepower maintenance. Early G-E laboratory samples dropped to one-half candlepower in 400 to 500 hours. Now the figure is 85 percent at about 2000 hours and we can expect to go still further.

Nor is the question of refinement in initial efficiency a closed book. There are still possibilities in new phosphors, and sixty lumens per watt instead of fifty-two for the 40-watt lamp does not appear unreasonable.

Substantially higher wattages in fluorescent lamps are quite possible. We already know that we can make longer tubes and are planning to make them. Anything beyond these known improvements, today, had better be put into the category of radical invention.

What about new shapes in fluorescent lamps—curves, half circles, angles? Any of these can be made, but if too many types are designed it is questionable whether the wholesaler and his customers would be benefitted.

Already, our laboratories have designed circular lamps for manufacture as soon as priorities permit. WHOLESALER'S SALESMAN and other leading trade publications have carried the announcement of three potential sizes of circular lamps, which can be made available to the public within a relatively short time after peace returns.

Before other new shapes can be designed, three factors must be considered. Two principal factors so far as the consumer is concerned are cost and convenience. It must be perfectly obvious that too wide a variety of curves would be too costly. At the same time, stocks would be difficult to maintain and replacement lamps would certainly be less convenient to obtain. Both of these consumer factors could contribute to delays in line production. It would seem, therefore, that the public would be best served in the postwar era if the limitless varieties of architectural curves are regarded as the natural field of custom-made tubing.

Luminaire Design

Postwar lighting equipment is certain to be even more largely fluorescent than ever before. Design will tend to be more completely functional and less ornamental, both in industrial and commercial markets.

For new lighting or the relighting of most types of interiors, post-

Well-lighted offices as above are scarce today and a boom market awaits the release of satisfactory fixtures.

Better light will save the eyesight of postwar school-children by bringing daylight intensities to the schoolroom. GE photos.

These Accessories will help you sell

ELECTRUNITE Steeltubes

—AND OTHER WIRING MATERIALS

In the April issues of ELECTRICAL CONTRACTING and ELECTRICAL EQUIPMENT you will find advertisements featuring the ELECTRUNITE STEELTUBES accessories shown above.

In these advertisements we tell the readers—your customers and prospective customers—to see you. We tell them that you carry these items along with a complete line of electrical supplies.

This advertising is a continuation of the ELECTRUNITE campaign inviting electrical contractors and maintenance men to get acquainted with the ELECTRUNITE Distributor.

ELECTRUNITE STEELTUBES is sold exclusively through electrical distributors. So, when we help you sell more electrical supplies, we help ourselves, too.

We always welcome suggestions or material which may be used to strengthen distributor-customer relationships. We will be glad to supply advertisement reprints for your use.

REPUBLIC STEEL CORPORATION
Steel and Tubes Division, Dept. W.
Sales Offices • Cleveland 8, Ohio
GENERAL OFFICES • CLEVELAND, OHIO
Berger Manufacturing Division
Culvert Division • Niles Steel Products Division
Union Drawn Steel Division • Truscon Steel Company
Export Department: Chrysler Bldg., New York 17, N. Y.

REPUBLIC STEEL — FREEDOM FOR INDUSTRY

Republic "INCH-MARKED"
ELECTRUNITE
Steeltubes
ELECTRICAL METALLIC TUBING MARKED WITH A CONTINUOUS FOOT-RULE

war, the demand for fixtures will tend toward flush mounting and with war experience as a guide, a high percentage of continuous-row or large-area installations will be made.

In most new buildings recessed or flush-mounted fixtures will distribute cool, soft, even light on working surfaces. Combinations of fluorescent with versatile filament lighting will continue to spotlight and highlight industrial processes and commercial displays.

Marketing Lighting

But all of these are engineering and architectural considerations. There are other important questions upon which hinge the answers to many postwar lighting installations. For example: What kind of lighting market will there be after the war? That depends, first, on the business situation.

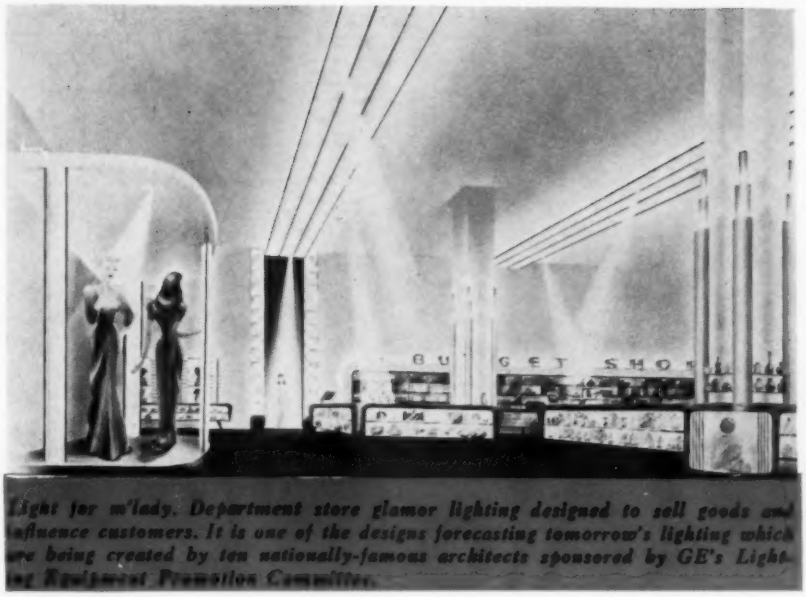
Let's go back again to our Prologue, consider the past, and study the economic cycles that succeeded World War I. As the economists have pointed out, there was first a short period of hesitation; then a year of good business, and an approximately equal period of sharp but not too severe depression, followed by ten years of prosperity. If this pattern repeats, what about lighting practice then? Perhaps it would be better to put it another way: What kind of lighting opportunity *could* we have?

Opportunities Limitless

What we could have is almost limitless. The present vast productive capacity of our country can be utilized in peace as well as in war. In fact it is the considered opinion of the informed that we must maintain this productive rate in order to survive. So that we may be prepared, what should we plan to do?

New volume in the postwar commercial market will come, not from relatively few large installations but from a multitude of small ones, jobs of ten, twenty, and up to a hundred fixtures.

In 1942, despite the fact that three-fourths of the year's production was restricted by war, lighting fixture manufacturers attained the amazing annual volume of eighty to a hundred million dollars.



Light for m'lady. Department store glamor lighting designed to sell goods and influence customers. It is one of the designs forecasting tomorrow's lighting which are being created by ten nationally-famous architects sponsored by GE's Lighting Development Promotion Committee.

In 1943, even after the war had necessitated the diversion of critical materials to other uses, war production and essential commercial replacements held that volume at a going rate of more than fifty million dollars.

These figures represent the postwar planning scale of practical men who believe that another hundred - million - dollar market awaits the return of peace-time manufacturing.

These men believe that the war-starved commercial field will be an even larger market than the industrial plants which will have to be reconverted at the end of the war. With a few exceptions, new war plants are equipped for adequate illumination. Nevertheless, there are many little seeing-problems even in these new plants which general illumination has fallen short of solving.

In all plants, old or new, the volume of industrial lighting installations closely follows the index of business activity. Although war has again given a powerful upward surge to lighting, just as it did twenty-five years ago, no one could be justified in supposing that general lighting will increase to several hundred footcandles right away.

Even if cost were neglected entirely, we would first have to find a way to make the lighting acceptable from the comfort standpoint. Then practical equipment would have to be designed, capable of producing new high levels of illumination.

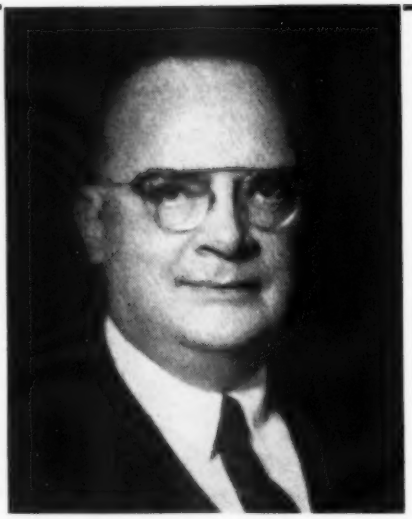
Education Needed

Improvements are certain to come, but they won't come overnight. Lighting education must precede lighting development. Many of us can recall the days when looms in low-ceiling textile mills were lighted with arc lamps forty or fifty feet apart, and production executives thought we were extravagant when we recommended a light source every ten feet to maintain a ratio of 1 to 1 between mounting height and spacing to assure reasonably uniform illumination.

Lighting education is progressing. Even now, in the domestic lighting field, powerful new war-born trends are operating to work drastic changes in domestic buying attitudes and habits. Millions of workers now employed in war plants are learning at first hand the true value of high level modern lighting. Many are working under lighting that has been correctly applied in units of from five to a hundred times as effective as anything they had ever previously experienced indoors. When they return to their homes, these workers will be increasingly aware of the inadequacy and the inefficiency of present home lighting, and they are sure to expect and demand more from lighting than ever before.

When That "Backlog"-Spending Boom Breaks—

Circuit Breakers, Motor Controls, Offer Large Potential Volume



C. Lewis Hull

SO that we may correctly consider what the electrical wholesaler and his salesmen should do in the postwar era, in order to get the most out of the potential market for electric switch and control equipment, it will probably be advisable to consider the position that we are in right now.

The country is and has been in a period of slowed down industrial building, curtailed residential building, limitations on physical inventories and restrictions on free and open buying due to allotments and priorities, all made necessary by the scarcity of critical materials that are still needed for the war effort. The one main customer is still Uncle Sam.

However, the so-called postwar era is here right now for many manufacturers, due to cut backs and changes in the types of equipment the government needs. Therefore, we must understand now that the time is not far distant when we must consider some changes in our methods of operation. We must return to our old time mental alertness to get our share of the new business that ever changing and improved methods will provide.

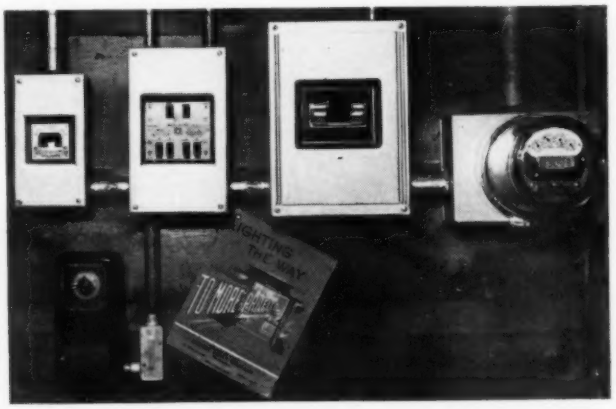
We have had a seller's market for so long, because of tremendous requirements of the war effort, that some of us have lost touch with the technique of "scratching." It would be well to take a look over the shoulders at the dark days of 1932 and '33 and study the things done then to keep your organization alive. We do not believe that industry will sink to a business level that low for a good many years, however, we do expect a period of adjustment immediately following this war, at which time we will need to consider ways to go out after business, instead of awaiting the telephone call which usually says, "How soon can you ship a thousand of this or twenty-five thousand of that?"

There are quite a few bright spots in the outlook for after-the-war business. Equipment today has been materially improved, particularly in switches, panelboards, circuit breakers and motor control, and their uses will be far more widespread than a few years ago.

The Future Market

Now, let us consider where to look for this new business and what to do in order to get the most returns for

Salesmen will find a lucrative post-war market among shops that will need new motor controls and circuit breakers.



Re-vamped, up-to-date electrical systems, such as this multi-breaker installation will be needed in remodeling of stores.

Switches, Panelboards—to Real Salesmen

Speaking of Post War Selling

By C. Lewis Hull*

the sales effort which we propose to invest in these fields.

A great many electrical contractors now working in war plants will be starting their own businesses again. They will want to see such new devices as new improved safety switches. They will want to know about obtaining the maintenance work for so-and-so's plant. They will want to have a hand in improving the power distribution systems which through excessive overloading have become antiquated. Wholesalers and salesmen can help their contractors locate such business.

Panelboards in these systems that do not have enough circuits can be converted by the use of new multi-breaker units to provide room for more circuits in the existing box that is in the wall. New smaller circuit breakers will be available both in individual enclosures, and for lighting panelboards and power panelboards.

The Rural Areas

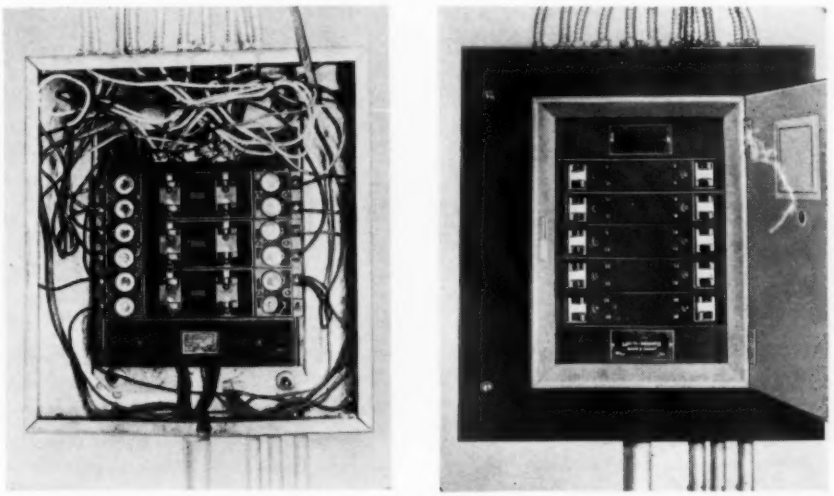
Those wholesalers who serve the rural areas will know that there has been much activity in the extension of rural electrification, and in those areas where large hydro electric plants have been completed, a resumption of R.E.A. buying will demand quantities of new forms of circuit breaker equipment, as well as switch and fuse equipment of both the indoor and outdoor variety. The farm demand will be heavy for new pumps and motorized equipment to which should be added their attendant motor controls, disconnect switches or breakers.

New Homes

In the field of new home building, a movement is already started to have homes wired and equipped beyond the present idea of what constitutes adequate wiring. This new plan will include: fixed lighting equipment conforming to better-light-better-sight principles; a planned and completely equipped electric kitchen; a planned and completely equipped electric laundry (with or without electric water heater, at local discretion); a year round conditioning system of whatever size might be appropriate to the locality. This means a better wired home with larger circuits in the entrance switches or circuit breakers and distribution cabinets.

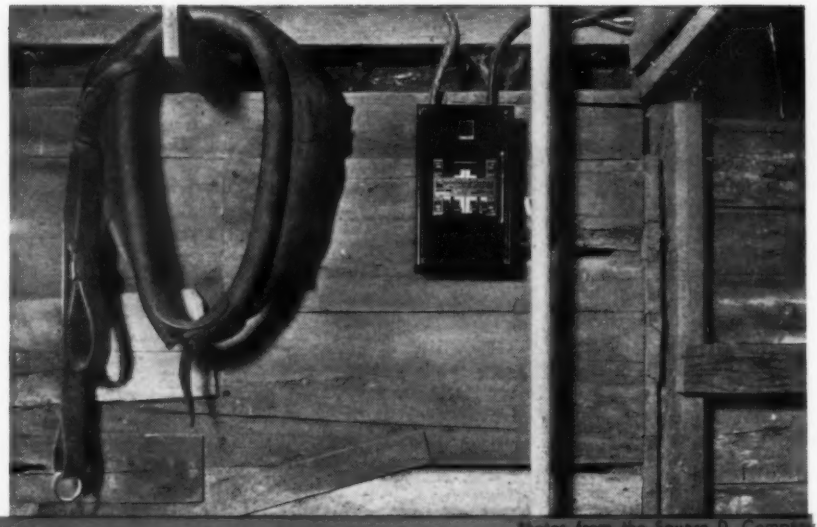
Wholesalers and salesmen should keep in touch with the new "post-war home-building clubs" which are being organized in various localities. These clubs usually have a savings arrangement for future home building and have the backing of the local power company. They stress adequacy of house wiring, service entrances, capacity, circuits, wire size and the number and proper placing of convenience outlets and switches. Such plans will materially increase the volume of wiring equipment per home in postwar construction.

In the prefabricated house field, some manufacturers are already including the wiring which is prewired in the walls. The service entrance switch goes along with the house together with distribution cabinets. Wholesalers should not overlook these manufacturers, for the time is coming when the smaller sized houses will be completely wired be-



An important rewiring job that will sell much equipment for wholesalers is the installation of panelboards to give added circuits without increasing the size of the box as was done in the "before" (left) and "after" (right) installation shown above.

*Manager Merchandise Sales
Square D Company
Detroit, Michigan



Photos from the Square D. Company

Compact panelboards such as the above farm installations will be among the electrical items needed by the rural market. New REA construction as well as the backlog of rural electrification needs will make this a prime market.

fore shipment from the factory.

Now, for a look into the future market for switch and control equipment in the industrial field. It will be essential that wholesalers and salesmen keep in close touch with every industrial plant in their territory. There will be a period of very heavy purchasing of consumer goods in the electrical field, such as radios, washing machines, vacuum cleaners, toasters, irons, etc. Also, automobiles to satisfy pent-up demands following present stoppage of production in these articles. Factories producing all these consumer goods will be working a long period to catch up. Distribution systems in all such factories will need overhauling or replacement.

Electrical equipment in a plant may not be worn out as yet, but the majority of manufacturing plants today have factory layouts based on pre-war wages and they will be faced with rearrangements and new equipment to improve factory costs. This means new wiring systems, new switches, new motor control and new panelboards of modern design.

Let us consider a few individual industries:

Wholesalers serving the automobile industry will be interested in knowing that already some of the larger companies have appropriated money for large distribution system changes in plants all over the country. Some plants are already being changed gradually so that when the changeover from war production is given the green light, the distribution systems will be able to take care of increased loads. Salesmen should bear in mind that in calling on automobile plants as well as other types of industrial plants, there may be new departments to contact for electrical material. You must contact the purchasing agent and the electrical engineer, yes — but don't overlook the new planning engineering departments which are doing all the layout work, including all pieces of electrical equipment.

Watch the chemical industries including rayon, synthetic rubber, and oil refineries where corrosive or other destructive fumes are present. There are new types of explosion proof apparatus already being used in these industries, and the alert wholesaler's salesman can locate many sales in these new plants.

Steel plants belong to an industry that has been overworked during this war era. New uses for steel are now on the boards for the time when the extended plant capacity in this industry will be a problem. Here again, new machinery and new circuits mean an increasing market for more controls, switches and circuit breakers.

Those wholesalers who serve the railroads will find a lucrative market here. Greater allocations for locomotives, cars, etc., are already being given to the railroads. They will have large amounts to spend of the money which has been reserved from net income. In engine houses particularly, new shop tools are sorely needed as soon as available, and the demand for them again will mean the sale of more switches, circuit breakers and motor control. In the maintenance departments, purchases of the following equipment will all entail motor control and, in a great many cases, disconnect switches: these are air compressors, concrete mixers, cranes, grading and trenching equipment, hoists, lubricators, pumps, rail laying equipment, rail saws, tie tamping outfits, track surfacing equipment, and welding outfits.

Now, take a look at the market for switches and controls which will develop in the mining industry. Those wholesalers serving this industry should be alert to many new methods, which mean the use of new types of motor controls, switches and breakers. New methods are appearing in such operations as drilling, blasting, mucking and hoisting, also in shaft sinking, pumping, open pit practices, all made necessary by the need for cost reduction in the mines, both in coal and in ore.

In the marine field, keep abreast of what is going on in the shipyards, not only those along the coasts, but on the rivers and creeks as well. Electrical equipment on all kinds of barges and boats is a lucrative field that too few wholesalers have explored, and a great many yards are exercising their right to buy locally even for the war program. This industry will continue long after "V" day.

In a great many industries, there

is a trend toward a wider use of weather-proof and explosion-proof equipment. This is true particularly in the oil industry, brewing and creamery companies, distilleries, cold storage plants, rayon and plastic industries, flour and grain mills. It will be an advantage to the wholesaler's salesman who has the ingenuity to show such industries the newest developments in such equipment.

Bear in mind that your suppliers' field engineers are always ready and willing to help the wholesaler's own salesmen with any problems.

Eight "Musts" For the Boss

In order that the electrical wholesaler may get the greatest returns from the changes in industry, he must do the following:

(1) Do a more efficient stock job. Many distributors have overlooked the basic fundamental of why a distributor should be in business, that of carrying adequate stocks and rendering service from those stocks to his customers.

Because changes in industrial plants will be made one department or one activity at a time, this market will require reasonable quantities of electrical equipment quickly. The jobber who has adequate stocks will enjoy this business.

(2) Educate your customers to depend on you for quick and efficient service.

(3) Make use of sales helps, such as leaflets, mail stuffers, counter and window displays, suppliers' advertising reprints.

(4) Keep abreast of what is going on. Analyze all suppliers' literature and catalog it in the best manner possible.

(5) Be alert mentally and watch very closely the physical fitness of the personnel of your organization.

(6) Watch for geographical shifts of industry and population. Many new plants have been built for a specific war purpose in new localities, and many of these will, after the war, manufacture different types of products. This will mean another market for new circuit breakers, new panelboards, and new motor control.

(7) Be sure to have your sales organization cooperate more closely with the manufacturers' field men in order to keep up to date on new products and new applications for safety switches, panelboards, circuit breakers, multibreakers and bus duct, both plug-in and feeder.

(8) Don't let your sales organization lose its enthusiasm after explaining a product story or idea to a few customers. Don't forget the last customer who hears the story, is hearing it for the first time, and that with some customers you will have to tell your sales story more than once before it will finally sink in.

Let us repeat that the good old technique of "scratching" as it was known in '32 and '33, will provide profitable returns in the postwar period.

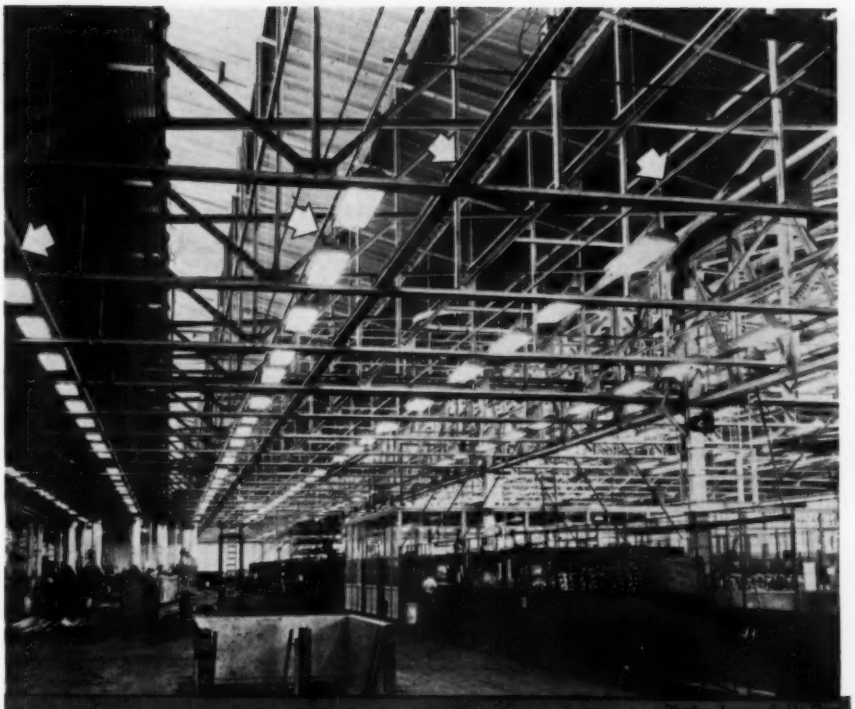


Photo from Bull Dog

War-time installations of steel plug-in duct will supply plenty of power for peace-time needs, but changeovers will bring need for new motor controls, switchgear, circuit breakers, fuse boxes, etc.

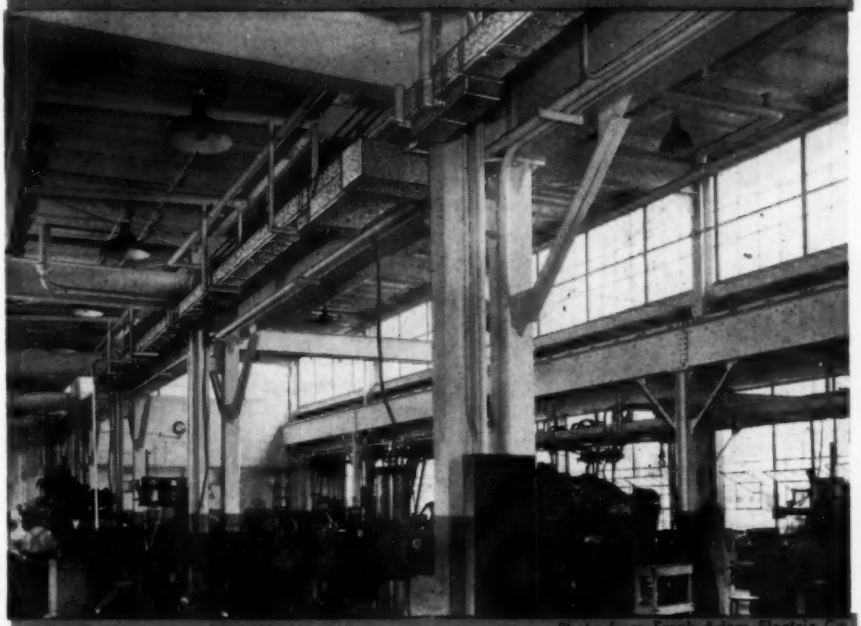


Photo from Frank Adam Electric Co.

Wholesalers will find a big market for electrical equipment when the end of war-time production requires extensive reconversion of machine shops and other industrial plants to the production of civilian goods.

When That "Backlog"-Spending Boom Breaks—

Appliances Face If Wholesalers

By Bret C. Neece*

THE huge postwar market for all types of electrical appliances presents an enviable opportunity to electrical wholesalers for the development of a vastly increased volume of sales and profit. While the appliance business has shown steadily increasing results since the start of the industry some thirty years ago, the market which will confront us when merchandise is again available promises possibilities for sales unequalled in pre-war years.

For almost two years there has been no production of electrical appliances of any type for consumer use. Accelerated demands in 1941 and the early part of 1942 depleted inventories of manufacturers, wholesalers, and dealers with the result that the termination of production in May of 1942 occurred when merchandise shelves were virtually bare, except for certain isolated instances.

Thus, the industry faces the problem of producing appliances in quantities sufficiently large to meet a vast re-stocking situation and to satisfy an immediate record demand of consumer desire. As an example, more than 5,000,000 electric irons were manufactured and sold annually in the several years prior to cessation of production. Thus, by the end of 1944, normal, unfilled requirements for irons will total over 12,500,000 units. Abnormal conditions of various kinds undoubtedly will have increased this consumer demand to well over 15,000,000 irons. Added to this figure will be the sizeable quantity necessary for working stocks, display samples, goods in transit, etc. Iron producers estimate that the trade and consumers could easily absorb some 17,000,000 units in the first year of unrestricted production.

Other appliances show proportionate figures of demand.

While such figures are interesting, and in a measure reflect the huge volume which lies ahead, it is understood and accepted that these pent-up or accumulated requirements cannot be discharged through an immediate, unlimited program of manufacture. The government has recently authorized the industry to produce and distribute 2,000,000 irons to the consumers of this country during the balance of this year.

Must Provide Equitable Distribution

The wholesaler shares with the manufacturer a big responsibility in the equitable distribution of appliances as they may be released. The job will not be easy, as evidenced by the above example of demand versus available goods. The problem is nonetheless of real importance to the distributor who has determined to be an active and permanent factor in the appliance industry. He must use great diligence and care in the allotting of his share to allocate fairly this new merchandise to those retailers deserving deliveries.

The foundation for a worthy dealer organization can be laid in part by the intelligent handling of early quotas of merchandise, rationed with consideration for past performance, but compatible with the establishment of a dealer clientele.

The electrical wholesaler is indeed a logical outlet for the distribution of appliances, because of his complete interest in the electrical field. His postwar success, however, will be challenged by many other elements in the distributing field, and unless he is acutely alive to the demands of competition his proportionate share of this big business will be most difficult to secure.

Following Victory, new factors will invade the appliance field both from a standpoint of the wholesaler and the retailer. Competition will be keen, innovations in selling will not be uncommon, and the successful distributor will be forced to be resourceful to command his fair portion of the existing volume.

In my opinion, following the discharge of the currently accumulated backlog of demand, the aggressive wholesaler will become an increasingly important element in the ultimate development of appliance volume. His duties, however, will not be merely the stocking, delivering, and billing of merchandise to the dealer, but will be far more embracing in many respects, particularly in regard to aiding his retail outlets.

The first step, of course, is the development of an adequate dealer or-

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*Vice-President
Landers, Frary & Clark
New Britain, Conn.

Speaking of Post War Selling

Record-Breaking Volume Build Dealer Outlets NOW

ganization to serve the territory covered by the wholesaler. This will demand careful analyzation of prospective retailers in each community, with a view toward selection of accounts which will combine aggressive sales talents with sound business sense. The wholesaler must avoid the temptation of "over-distribution" through the appointment of too many dealers in a territory, simply to have a quantity of outlets on his books. The credit position of the dealer, his popularity in the community, and his ability to put into effect the sales and promotional plans of the distributor and manufacturer, are important considerations in retail outlets.

To meet the very active challenge in the appliance field in the postwar period which will stem from group retail organizations with well-defined and active merchandising plans placed in the hands of the individual stores by the headquarters organizations, the wholesaler will necessarily act as a tutor, advisor, and inspirational leader for his dealer group. He must be ready to equip his retailers with merchandise that will be competitive not only in price, but in quality, design, promotion, and advertising. He will need to be resourceful in the planning for window and store displays, newspaper, radio, billboard and other types of advertising. He should counsel with his dealers and make recommendations for the employing and supervision of sales people, establishment of deferred payment plans, operation of service departments, development of consumer circularization, and the other time-tested factors of successful appliance selling.

One most important service which will be attendant upon the distributor is the training of the sales personnel of his retailers. More than ever, acquaintance with every element of his product—its competition, its performance, its cost of operation, as well as general sales technique, will be a "must" for the successful dealer salesman. While much of this information will be imparted by the dealer himself, the distributor should assume the supervision of such educational training, through sales meetings and courses, with up-to-date literature of a descriptive nature, and by frequent personal contacts with the retail sales people.

The volume-minded manufacturers will be of great assistance to their wholesalers and will provide many of the necessary implements to institute the co-operative measures outlined above. Actually, it is a dual responsibility between distributor and manufacturer to place in dealers' hands these devices for sales success. The application of such merchandising tools, however, is of necessity a part of the wholesaler's function.

While these suggestions for specific activities of the electrical wholesaler in the appliance field may seem to be complex and possibly somewhat foreign to his procedure in other branches of his business, the adoption of a well-rounded sales attack embodying these principles will pay huge returns in sales and profit.

The forward progress of conveniences for the American home will be greater than ever after Victory. Manufacturers today are planning the production of new and better labor-savers which in the not too distant future will create such appeal that previous appliance sales records will be easily passed. The household appliance market of tomorrow represents an attractive and lucrative business for those who will gear themselves to the tempo of the industry.

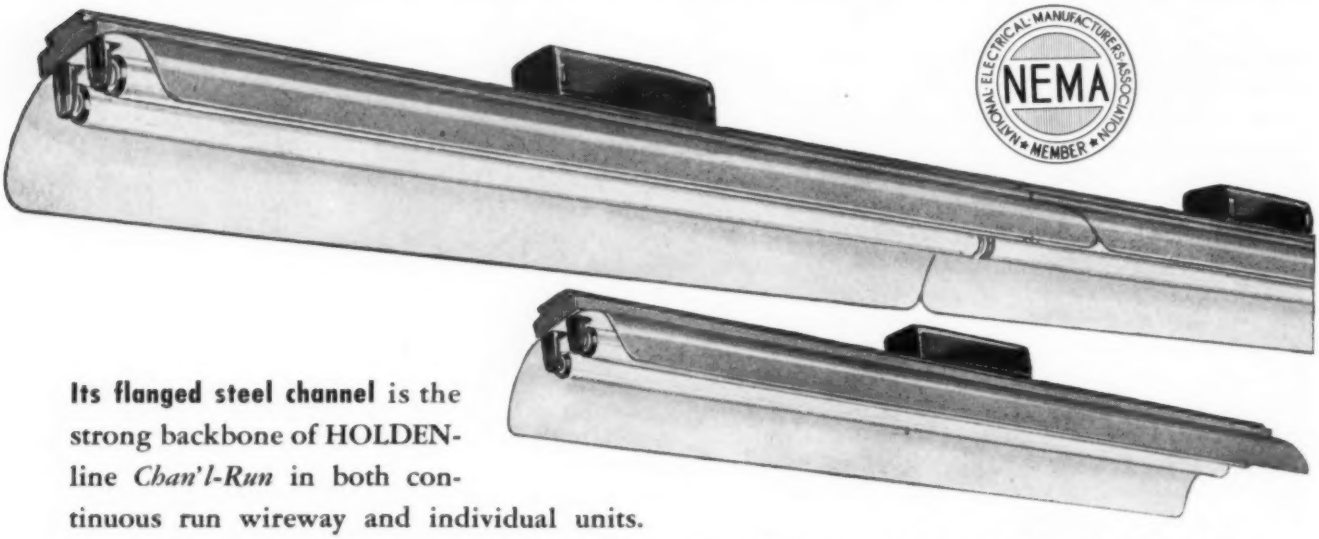
The electrical wholesaler has a prominent and logical stake in this very productive field. I anticipate real exploitation of the appliance market by the electrical wholesaler when merchandise is again available.

New HOLDENLINE CHAN'L-RUN

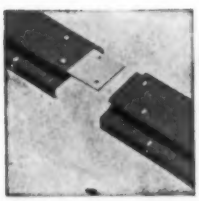
ready for immediate delivery

INDIVIDUAL UNITS OR CONTINUOUS WIREWAY

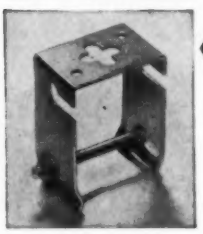
As pioneers in industrial fluorescent lighting, HOLDENline presents its new Chan'l-Run in *continuous wireway* or *individual units,* with pride and confidence born of experience, plus an engineering lighting background. A study of HOLDENline *Chan'l-Run* reveals the sound engineering principles that contribute strength, simplicity and lighting efficiency.



Its flanged steel channel is the strong backbone of HOLDENline *Chan'l-Run* in both continuous run wireway and individual units. Its advantages in continuous run lighting are speed in installation, saving in wire and labor, plus ease of hanging and maintenance. Steel limitations have not impeded the design of these fixtures, instead they have stimulated an efficient combination of lightness with strength.

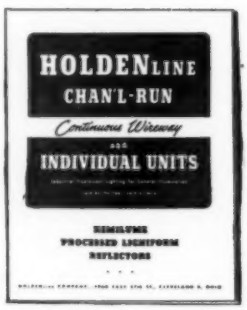


METAL PLATE that firmly joins one section to another for continuous runs.



HANGER STRAP that slips over Chan'l-Run flange, grips firmly and easily and permits positioning of strap at any convenient point on each section except where outside ventilated ballast is mounted.

Note the versatility of the Hanger Strap which serves equally well for pendant, chain or cable suspension.



Send for Catalog T-44. *Gives full details, sizes, prices, weights and lighting efficiencies in detail.*

IMPORTANT INFORMATION!

All HOLDENline Chan'l-Run and standard sections are fitted with Ligniform reflectors, Kemilume processed, giving excellent light distribution and high reflection factor.

Individual units

Two sizes for . . . 2—100-watt lamps
2— 40-watt lamps

Continuous Wireway Sections come in

96" and 48" lengths for 40-watt lamps
120" and 60" lengths for 100-watt lamps

HOLDENLINE CO.

1960 E. 57th ST. • CLEVELAND 3, OHIO

We Sell thru Wholesalers Exclusively

Electronics in Industry

Speaking of Post War Selling

INTRODUCTION

Industrial applications of the electron tube in combination with various types of apparatus or attachments have grown with such rapidity under the stimulus of need for speed and accuracy in war production that no listing would be complete long enough to let the ink get dry on the paper. Many of the most intricate and highly important industrial applications can not now be divulged.

The list of proven applications of electronics in industry which follows was compiled by the staff of ELECTRONICS, a McGraw-Hill publication, in cooperation with leading engineers among the producers of industrial electronic equipment.

Arranged in eight basic groups of functions, each listing represents an actual proven instance, where efficiency, speed and/or safety were increased through the proper application of devices employing the electron tube.

We urge upon every electrical wholesaler, every salesman, every ambitious stock or counter clerk, the most careful study of this list.

Reconversion to peacetime production will bring many demands for electronic products. The intense competition for peacetime markets, which is inevitable after the war is won, will force every manufacturer to buy any and every device that will aid in getting more or better production.

The electrical wholesaler should know which electronic device to recommend where.

The EDITOR

GROUP I

ELECTRONIC HEATING

Induction

FERROUS METALS: Hardening, annealing and heat treating, flowing of tin on tinplate, baking of finishes. Pre-heating for welding, forging, spinning, extruding or upsetting; stress relief of welds or brazed joints, melting.

NON-FERROUS METALS: Brazing and soldering, annealing, melting, and alloying, heat treating, degassing of tube electrodes, glass to metal seals, melting, welding.

PROCESSING: Detonating of explosive rivets.

Dielectric

ABRASIVE MATERIALS: Baking after pressing; baking under pressure, as applied to resin bonded materials.

FOODS: Sterilization, pasteurization, dehydration, deactivation of enzymes, cooking and heating, baking, curing, destroying infestations.

GLASS: Laminating, welding glass pipe.

IMPREGNATED SHEET MATERIALS: Laminating of flat sheets, preheating of stacks of sheets, curing of molded shapes.

PLASTIC MOLDING MATERIALS: Preheating of forms for compression and transfer molding; heating in molds.

RUBBER: Curing of rubber, curing of foam rubber, drying, preheating molding compounds containing rubber.

SHEET PLASTICS: Cooking during manufacture, annealing and heat treating, heating for shaping, laminating of sheets, seam and edge joining.

TEXTILES AND PAPERS: Drying of rayon cakes, heating of nylon thread, drying of cloth and paper, heating rayon to balance the cord.

THIN MATERIALS: Sealing of containers, "sewing" of thermoplastic sheets and fabrics impregnated or coated with thermoplastic materials.

WOOD: Gluing, bonding, drying, seasoning.

GROUP II

CONTROL

Devices for controlling some quantity or condition in mechanical, electrical, economical, etc., processing industries

CARRIER CURRENT CONTROL: Greater utilization of existing facilities in power systems; increased reliability through automatic remote switching.

COMBUSTION:

1. Temperature control by monitoring color of flame or heated object.
2. Flame failure alarm actuated by light of flame or conduction through flame.
3. Smoke density control by effect of smoke particles on light reaching tube.

ELECTROSTATIC PRECIPITATION: Removal of dust, smoke particles, fumes, pollen, moisture droplets and other particles from air or gases.

FILAMENT CARBURIZATION: Vacuum tubes.

ILLUMINATION: Turning lights on and off automatically as needed in rooms, for photoprinting processes, etc.

INDUCTION HEATING CONTROL

LIQUID LEVEL CONTROL

LOAD CONTROL

MOTION INITIATION: Door opening, drinking fountain control.

MOTION LIMITING

MOTOR SPEED CONTROL: d-c motors operated from a-c lines, and vice versa.

PAINT SPRAY CONTROL

REGISTER CONTROL: Performing some operation (as cutting, perforating, color printing, folding, etc.) at correct positions on previously printed continuous webs or strips of cloth, paper, etc.

REMOTE CONTROL

SWITCHING: carrier current

SMOKE PRECIPITATION

SYNCHRONIZATION: Power lines and generators.

TEMPERATURE CONTROL: Heating and tempering.

TIMING

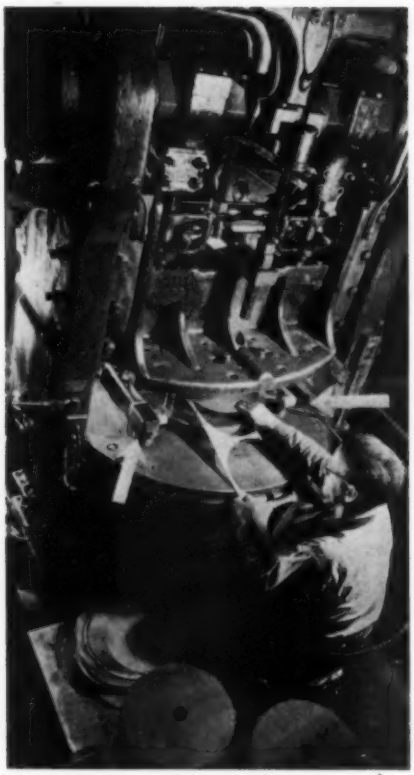
TITRATION: controlling the strength or concentration of a substance in solution.

TRAIN CONTROL

WELDING CONTROL:

1. Arc welding—use of high-frequency starting spark; motor control of electrode feed.

Like many war-time inventions, this idea of shutting off night lights during a blackout by using a photo-electric cell that is actuated by the street lighting, may be the forerunner of peace-time developments that will create many new products which the wholesaler can sell.



Because of a photo-electric safety device this worker is producing stampings faster for the war effort, and after the war the same devices will help manufacturers meet competition by increasing the efficiency of its labor.

2. Resistance welding—electronic control of current and timing for spot, seam, butt, flash and projection welding.

GROUP III

REGULATION

The regulation of a quantity or process to a predetermined standard of quantity, quality, size, etc.

GENERATOR VOLTAGE REGULATION AND EXCITATION

SKEW: Monitoring fabric threads.

SPEED

SLACK REGULATION: as in wire drawing, paper and textile machines, etc.

TEMPERATURE

TIN FLOW: in tin plating.

GROUP IV

POWER CONVERSION AND PRIMARY USES

ELECTROLYTIC PROCESSING

FREQUENCY CONVERSION

INVERSION: changing d-c power to a-c power.

PLATING

RECTIFICATION: changing a-c power to d-c power.

GROUP V

COUNTING, SORTING, WEIGHING, INSPECTING,

BATCHING AND PACKAGING by bulk

CASTING INSPECTION: by sound and X-ray.

CLASSIFICATION: of cards.

CONVEYOR: counting, sorting, routing.

COUNTING

FLAW DETECTION: by phototube, sound, X-ray, etc.

GRADING: by color and size.

LOCATION of cable faults, pipe faults, hidden metals, broken insulation, etc.

METAL DETECTION: Underground, in logs or boards, in packaged goods, concealed on persons, etc.

MICROSCOPE INSPECTION, electronic

PERFORATION DETECTION: pinholes in tin plate, rubber sheeting, etc.

REFLECTION PRINCIPLE, inspection by

SURFACE ANALYZING

WEIGHING

X-RAY: Industrial examination; analysis by diffraction.

GROUP VI

MOLECULAR VIBRATION USES

Sonic and Supersonic

The phenomenon of induced molecular vibration by use of frequencies above the audibility of the ear.

CHANGING OF NATURAL CONSISTENCIES (such as homogenizing)

CHEMICAL COMBINATIONS AND DISINTEGRATIONS

EMULSIFICATION

GERM KILLING

INSECT DESTRUCTION

MAKING OF COLLOIDAL SOLUTIONS

MIXING OF POWDERED METALS

UNDERWATER SIGNALLING

VIBRATION FATIGUE

GROUP VII

MEASUREMENT and ANALYSIS

by Electronic Means

BALANCING MACHINES: Measuring unbalance of rotating objects.

CAPACITANCE

CASE HARDENING

CABLE FAULTS

COLOR

CONDUCTIVITY OF SOLUTIONS

CURRENT, electric

CURVE TRACING: Spectral and vacuum-tube characteristics.

DENSITY: By measuring amount of light transmitted.

DIELECTRIC PROPERTIES

DISTANCE AND LOCATION

FREQUENCY

FLUX: Measurement of the strength (number of magnetic lines of force) of a permanent magnet or electromagnet.

GAS ANALYSIS

GEODETIC AND GEOPHYSICAL MEASUREMENTS

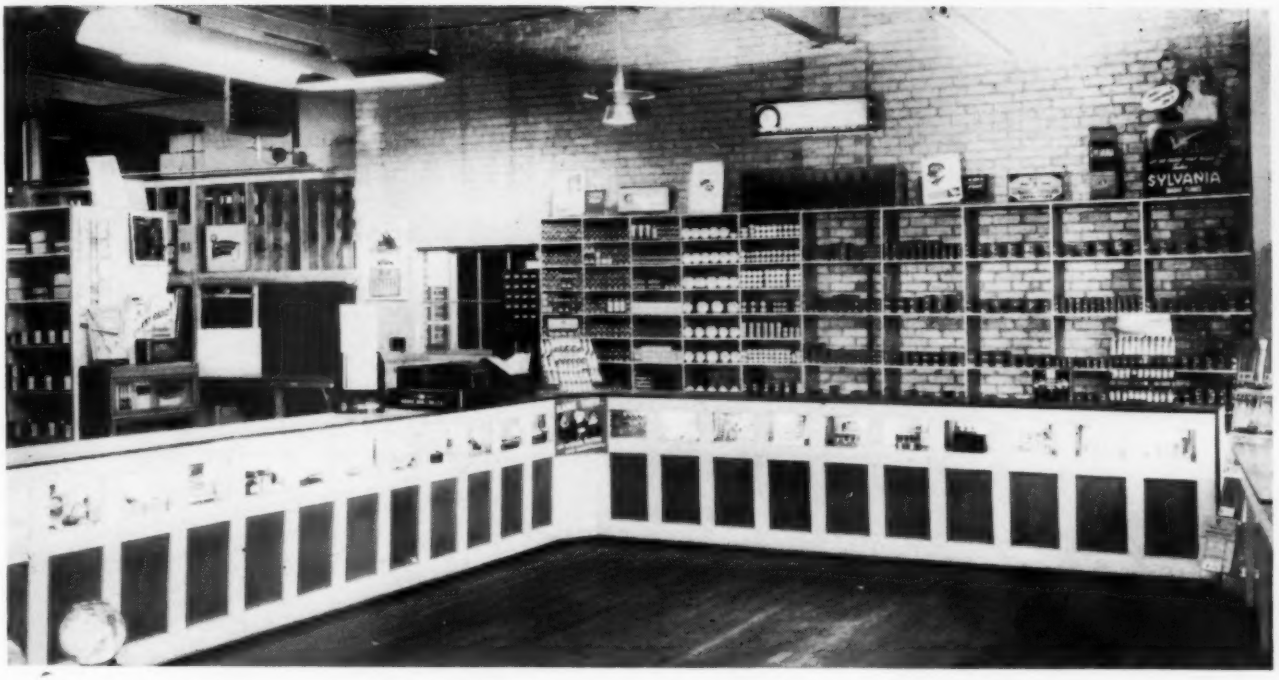
HUMIDITY

IMPEDANCE

IONIZATION (by Geiger-Muller Tubes)

LIGHT INTENSITY: Duration.

METEOROLOGY (Radio Sonde)



A typical electronics department in a wholesaler's house—a department that will be more common and more prominently displayed in the post-war era when the demands on the wholesaler for electronic products and components should increase.

MOVEMENT, DISPLACEMENT RECORDING

NOISE ANALYSIS

NUMBER, recording

PHARMACEUTICAL APPLICATIONS: Bacteria, vitamin counts

pH DETERMINATIONS

POWER, R-F

PRESSURE: gases and liquids

REACTANCE

REFLECTION: characteristics of light-reflecting surfaces.

REFRACTION: of glass, solutions, etc.

RESISTANCE, electrical

RECIPROCATION

ROTATION: Speed

ROUGHNESS, Surface

SMOKE DENSITY

SOUND LEVEL

STRAIN: Measurements using electronic "gages."

TELEMETERING, of voltage, current, wattage, reactive volt amperes, pressure temperature, water level, frequency.

THICKNESS

TIME: Recording

TITRATION

TRANSCONDUCTANCE: Vacuum tube

TRANSPARENCY

TURBIDITY

VACUUM

VACUUM TUBE FAULTS: Shorts, opens, hum, noise.

VELOCITY

VOLTAGE

WAVE FORM

WEIGHT of physical, chemical, electrical dimensions.

X-RAY DIFFRATION

GROUP VIII

SAFETY

Devices which give warning of improper operation in fabrication and processing, or which indicate when a measured quantity exceeds set limits. Devices for protection of goods, property, life.

COMBUSTION: Automatic warning of flame extinction, turning off of fuel, maintenance of predetermined heat, etc.

DOOR OPENING

FIRE

FLOOD

GENERAL: Devices listed in above groups may be fitted with alarms (lamp, bell, horn, etc.)

INTRUSION by man, animal or object

LIGHTING, automatic control as safety measure

MACHINERY, automatic stopping of

MERCURY VAPOR, detection of

OVER-VOLTAGE ALARMS

POISON, detection of poisonous or obnoxious fumes.

REFLECTION PRINCIPLE for collision elimination, etc.

SMOKE DETECTION

TRAFFIC, automatic stop signals, speed warning, light controllers, altimeters, direction finders, automatic piloting.

VOLTAGE FAILURE PROTECTION

A light source and phototube housing, as indicated by arrows, create a safety fence for these workers as they cut metal in a large war plant. Already extensively used in industry these safety devices should find wider use when available as "package units" for peace-time industry.

When That "Backlog"-Spending Boom Breaks—

Rural Regions Will Score For Wholesalers

By Harry Slattery

Administrator
Rural Electrification Administration

MANAGERS of REA co-operatives frequently come to our St. Louis headquarters to consult with us on special wartime problems. I have made it a point to ask many of them what electrical equipment farmers are going to buy after the war. The usual answer is "Everything they can get their hands on."

I hope that statement is exaggerated. I hope, and believe, that farmers will weigh their postwar purchases carefully to be sure that they get their money's worth. On the other hand, their attitude certainly will be one of eager receptivity.

I hope that our business people who supply electrical equipment will recognize their responsibility to provide a high percentage of productive appliances. Electricity on the farm can pay its own way, and more. But the application of electricity to food production processes means that specially-designed equipment is necessary. It is not enough to take off a hand crank and attach an electric motor.

Moreover, the day of the order-taker is soon to end, I hope. Business houses engaged in the distribution of electrical goods ought to have some regard for the interest of the farm customer, and take into account any special factors implied in special ordering arrangements. Profitable business is coming in the postwar rural electrification development, business which should be profitable to the customer as well as the supplier.

Now for some facts and figures on the size and scope of the rural market:

Since the outbreak of war, for a number of reasons, REA has not conducted any general appliance surveys. However, we have substantial piece-meal evidence that the farmer, even now, is installing more electrical equipment to help him with his farm work. His incentives are wartime labor scarcities, a need to produce more food, and a growing acquaintance with the value of electric power as an aid in farming. Labor-saving and food-producing electrical devices now being installed by farmers in great numbers include water pumps for livestock, milking machines, milk coolers, cream separators, pig and chick brooders, and feed grinders.

For example, appliance surveys conducted by an REA-financed co-operative in Iowa showed that the percentage of electric cream separators owned by its members increased from 53.8 to 77.5 percent between May 1941 and January 1943. Increases for other electrical installations were as follows: Chick brooders, 19.2 to 33.4 percent; milking machines, 11.7 to 25.3 percent;

What Appliances the Newly-Wired Farms Buy

The following data were compiled by the REA from actual purchases in the first 10½ months by 50,421 of the farms that were wired in 1939.

Appliance	Number	Per Cent	Appliance	Number	Per Cent
Iron	42,300	84.2	Hot Plate	9,650	19.2
Radio (non-battery)	41,420	82.4	Coffee-maker	3,170	6.3
Washing-machine	29,600	58.9	Range	1,560	3.1
Refrigerator	16,200	32.3	Roaster	855	1.7
Toaster	15,600	31.0	Water Heater (tank)	604	1.2
Cleaner (floor type)	10,700	21.3			

In considering these figures in judging the post-war market, wholesalers should remember that the above purchases were made by farmers on pre-war incomes, and undoubtedly will be exceeded in post-war years when farmers have available a backlog of war-time savings to use for these purchases. Such larger income would tend to increase the percentage of purchases of those appliances at the end of the list above.

Record Sales Who Have the Needed "Know-how"

AN REA-sponsored rural electric cooperative. By 1943, REA had loaned $375,000,000 to finance these generating plants and their distribution systems for more than 1,065,000 consuming units. More than $100,000,000 of further construction is awaiting the end of the war. REA photo.

water pumps, 27.4 to 58.8 percent; poultry lighting, 14.3 to 43.0 percent.

The manager of this system recently said that the results of the surveys indicate that "members of our co-op began the year with a substantial number of electrical tools," but "if another survey were made today the figures would be considerably higher. More than 90 heating elements for home-made chick brooders have been sold since January, and we know that a number of manufactured brooders also have been purchased by members."

This Iowa cooperative furnishes electricity to 2,800 rural consumers, of which 95 percent are farms; 69 percent of the cooperative's consumers made returns in the 1941 survey and 65 percent in the 1943 survey.

A Nebraska REA borrower's appliance surveys showed that the percentage of cream separators had increased on its system from 16.8 to 41.2 percent between May 1942 and January 1943. Electric water pumps increased from 23.8 to 40.7 percent, electric chick brooders from 12.0 to 23.1 percent. This system serves 700 consumers, of which 92 percent are farms; 55 percent participated in the 1942 survey and 77 percent in the 1943 survey.

Since January 1943, REA borrowers have been connecting farms under the War Production Board's regulations authorizing service extensions to nearby farms able to use electricity in livestock, dairy and poultry production. The borrowers expect that 70,000 to 80,000 farms will have been connected during 1943 under these regulations.

Reports received by REA indicate that farms connected under the WPB regulations are making extensive use of electricity in food production. Each of the farms is required to use one or more specified electrical devices helpful in saving labor or producing food. The accompanying (A.) tabulation shows the percentages of specified pieces of equipment listed by a few of the farms connected to REA-financed lines under WPB's farm service connection regulations.

Those figures show that the farmer is anxious to buy electrical equipment to help him work and live better. There is nothing new in this attitude. The accompanying tabulation (B) shows how those connected to REA-financed lines put their electricity to work and added to their installations as long as appliances were available. These percentages represent a big business. The present percentages of appliance saturation on all farms with electric service may be presumed to be roughly similar to those on the REA-served farms. When REA came into existence in 1935, about 700,000 farms had electric service. Now the figure has risen to about 2,500,000, with about 850,000 of them getting power from lines financed by REA.

An important factor in bringing about this increase was an investment by the Federal Government of about $470,000,000 in loans to 868 separate local business groups in the utility industry. Nearly 800 of them are cooperatives of farmers, organized for the specific purpose of building and operating a rural power system. So far, about $375,000,000 has actually been advanced on these loans; late in 1943, 810 borrowers were operating more than 385,000 miles of power lines, and 64 of them

were generating some or all of their power. In addition to the approximately 860,000 farms on their lines, they were serving enough stores, rural industries, schools, churches, and the like to bring the total of their consumers to more than 1,065,000.

Only about a third of this mileage was in service four years ago, so there has not yet been sufficient time to prove or disprove the ultimate financial soundness of the loans. This is especially true since the repayment schedules set up for the borrowers call for increasing payments reaching a peak after seven years and a total 25-year amortization period. The experience on the schedules as they mature for larger and larger amounts, however, indicates a trend which probably is significant. By the end of October, 1943, $40,185,000 had fallen due. Of that amount, $203,000 was over 30 days overdue. All the rest had been paid, and more than $14,000,000 had been paid in advance. The delinquent payments, most of which were very small, were owed by 167 borrowers, but only 5 were behind on principal payments on loans for construction. The advance payments had come from 578 borrowers.

With this experience, it seems reasonable to believe that after the war the program can be resumed, perhaps at a substantially accelerated pace.

The rural power field still offers ample opportunity for expansion. Only 40 percent of our farms have electric service even now. Census figures indicate that in addition to nearly 4 million farms without service, about 3 million nonfarm dwellings, rural business establishments, and unwired dwellings on farms on which some electric service is being used still remain to be connected before our rural electrification job can be considered finished.

The difference of some $95,000,000 between approved REA loans and the amounts so far advanced against them provides the means for an immediate, in some cases practically instantaneous, resumption of construction when material again becomes unrestricted. No legislation, no government action beyond a review of proposed construction contracts, will be necessary to put much of that money to work. In addition, REA has loan applications on file totaling more than $100,000,000 although it has discouraged such applications for the past two years.

Beyond these tangible evidences of postwar rural possibilities, the REA borrowers throughout the country are now engaged in surveys of all unelectrified rural places in or near their present territories. They are working in close co-operation with other planners at the grassroots level. When these surveys have been completed, these local agencies will have maps on which a 100 percent electrification program could be studied for almost any county in America. It is hard to measure the postwar volume of business inherent in a major rural electrification program. If a loan fund of a half-billion dollars for construction should be approved, which would not seem unreasonable, then the total new market would be a billion dollars, for we have found that within the first year or so he has service the farmer spends just about as much electrifying his place as the power lines cost.

But that estimate omits an important factor. It contemplates only

SATURATION OF FARM ELECTRICAL EQUIPMENT

Tabulation "A"

Saturation of farm electrical equipment among certain farms connected to REA financed lines under WPB's war-time farm service connection regulations.

	Water pump, livestock	Brooder	Milking machine	Milk Cooler	Incubator	Feed Grinder
44 Georgia Farms	72.7	45.4	27.2	27.2	6.8	9.0
80 Illinois Farms	60.0	55.0	13.7	7.5	7.5	18.7
130 Minnesota Farms	68.4	30.0	76.1	3.8	....	3.8
33 North Carolina Farms	39.3	78.7	3.3	....	....	24.2
18 Oklahoma Farms	38.8	55.5	27.7	5.5	11.1	27.7
70 Wisconsin Farms	81.4	17.1	45.7	....	....	....

Tabulation "B"

Saturation of farm electrical equipment on REA-financed systems as reported in surveys made when most equipment was readily available and before restrictions on farm connections went into effect.

Equipment Farm—Electric	1939	1940	1941
Brooder	3.2	4.2	6.7
Cream Separator	9.9	7.5	8.2
Dairy Water Heater	0.2	0.3	0.3
Feed Grinder	0.4	0.4	0.5
Electric Fence	2.3	3.6	3.3
Hotbed Heating	0.1	0.1	0.1
Milk Cooler	0.8	0.6	1.1
Milking Machines	2.9	2.1	2.6
Motor, up to 1 hp.	14.4	14.5	14.7
Motor, 1 hp. and over	1.9	1.6	1.8
Poultry lighting	8.5	10.5	10.5
Poultry Water Warmer	0.4	0.6	1.1
Stock Tank Heater	0.1	0.1	0.2

Wholesalers can get a picture of the potential post-war market for farm electrical equipment by comparing figures in the two tabulations above. Tabulation "A" shows the saturation of certain pieces of equipment on selected farms which were required to make use of certain pieces of equipment in order to be granted service connections by the WPB. In Tabulation "B" is the saturation of farm electrical equipment in immediate pre-war years when farmers were "on their own." A comparison shows that there is a big field for intensive selling of productive electrical equipment among these REA-wired farms.

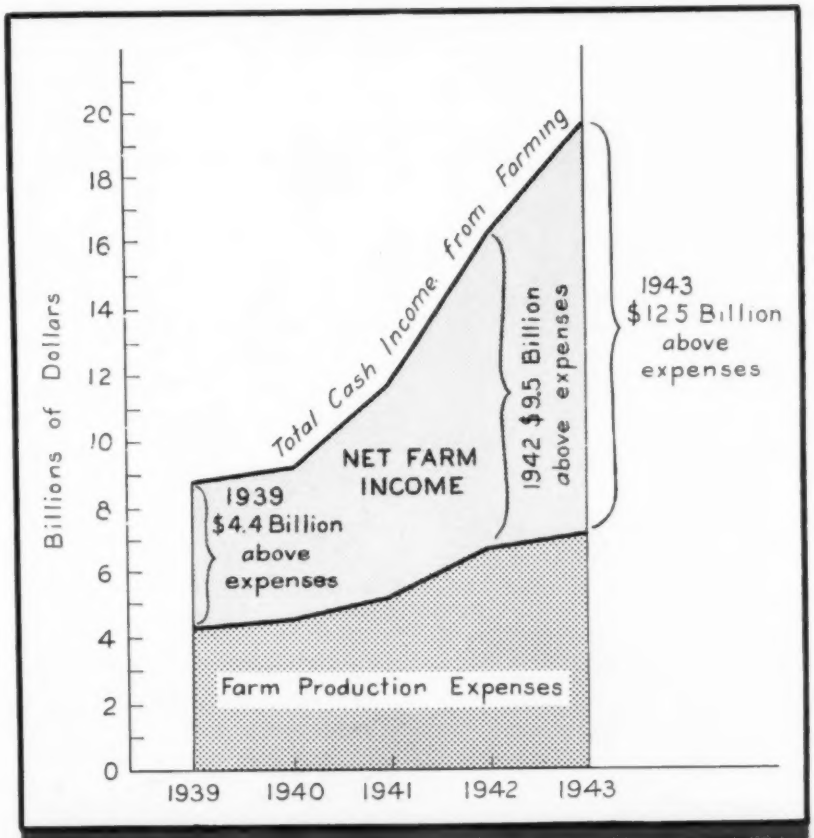
those consumers who will get electricity for the first time after the war. Even if no new construction should be undertaken, there would still be a huge market for electrical goods in our rural areas. The only significant survey which has come to my attention to attest this was undertaken by an Ohio co-operative with nearly 3,000 members, most of whom have had service several years. When asked to tell what they plan to purchase after the war, they listed a great variety of appliances, and based on prewar prices the average was about $400 per family—which is just about the same as the amount they have already spent for their household and farm electrical installations.

The manager listed only those appliances on his questionnaire which had already been reported in service. There was no listing of quick-freeze equipment, for example; yet of the first few hundred returns, 75 farmers had taken the trouble to write in a vote for it. This bears out earlier reports from our borrowers, that 25 percent or more farms on their lines will buy quick-freeze units within a year or so of the time they become available at a price of $200 to $300 for a unit of about 20 cubic feet.

An optimist could use these scraps of information to build a forecast of another billion-dollar postwar market among already electrified farms. Here is the way it could be done: There are 2½ million presently-electrified farms. If the Ohio survey is accurate and typical, a $400 expenditure by each of them would make up the billion without looking further. But if the Ohio figures are discounted 50 percent, that would still leave the field of new equipment, never placed on the market more than experimentally—quick-freeze units, completely automatic washing machines, bacteria-killing lamps for dairy, poultry and even pig producers, a farm-sized milk pasteurizer, and so on as far as your imagination can run. If the average investment in such equipment is $200, which would match the investment in new models of existing equipment—the total would be a billion dollars.

I do not seriously advance that estimate. There is no statistical basis for it. *But there is no statistical basis to prove it is wrong, either.*

THE "HIGH-LINE," already symbolic of the coming of a new age for America's farmers. Efficient production, labor saving devices, better crops, more conveniences and luxuries—the electrical equipment to provide most of these will be distributed by alert wholesalers. REA photo.



The net farm income has practically tripled since the good year of 1939, thus leaving more cash that is going into war bonds and savings. These savings, plus a greatly strengthened farm credit, will be available to pay for the farm electrical production equipment, luxuries and conveniences which the farmer

In Contract Termination Procedure COOPERATE For Best End-Results

By N. J. MacDonald*

RIGHT now, I believe it's up to us, manufacturers and wholesalers alike, to sit down and work out mutually intelligent, practical ways of handling this tough problem. The problem is so serious and so involved that it demands the immediate and concentrated attention of some executive in every concern and, so far, no one has evolved a patent answer.

Here are some informal, non-technical points of view that I'd like to throw into the discussion.

So far as we know, the existing Termination Procedures contain no provision which allows the subcontractor or sub-sub contractor to present his Termination Claim direct to the government. The "George-Murray Bill" has a provision permitting such direct settlement, but this is just pending legislation. The recent "Baruch Report" stresses the desirability of settlement of primes with their subs but says that legislation should be passed providing for direct government settlement with subs at the Procurement Agency's discretion.

It seems that the only direct relationship at the present time between the government and sub contractors is that provision in the "Baruch Uniform Termination Article" which provides that the obligation of the government to make payments to prime contractors shall, in the discretion of the contracting officer, be subject to deduction in respect to claims of sub contractors.

The manufacturer who distributes his products through the electrical wholesaler is at best a sub contractor and in most cases further down the line of subs. The reason for this is that in selling through the wholesaler, the manufacturer has inserted another party between himself and the government or the prime contractor.

To illustrate: Where a wholesaler sells to a government agency, he becomes the prime contractor. Where he sells to a shipbuilder, or an airplane manufacturer, he becomes a sub contractor, and in each case his supplier is one step further away from the consumer.

Under this set-up when Contract Termination comes along, the only method of procedure the manufacturer can follow is to present his wholesaler with a Termination Claim, depending entirely upon that wholesaler to forward that claim on to his customer, and looking to him to see that his customer does likewise, and so on up the line to the government.

Under such circumstances, your manufacturer must be assured that his claim will be promptly and intelligently presented for him by you, his wholesaler. In other words, the wholesaler who makes his livelihood through the value of the services and functions he performs for his customer and his supplier, must now undertake to discharge promptly his new responsibility in Termination cases.

Sharing the Responsibility

I have talked this over with many of our wholesalers, and they are thoroughly conscious of this responsibility. I have urged them to make certain that the men down the line in their organization are equally conscious of it. I have recommended to the wholesalers that they coach their salesmen and purchasing departments in the general purpose of the Termination Law, so that they will be familiar with the problems that will arise. Understanding the problems, they will be able to intelligently *protect the interests, of their concern as well as those of their suppliers.*

To emphasize this point seems important because of an experience we have just had. A shipbuilder cancelled an order on our wholesaler for special equipment. We filed our Termination claim on that wholesaler. He was most indignant, and wrote us that in his opinion we should waive the charge, because he did not want to offend a good customer, and he said that if we took an arbitrary position and insisted on collecting the charge, he, the wholesaler, would absorb the charge. In other words, this wholesaler considered his good customer to be in trouble, and it was up to him to help him out. That was wrong. There was nothing involved other than a prescribed commercial procedure and that wholesaler's attitude simply didn't belong in the picture.

That wholesaler just didn't try to understand the intent and purpose of the Termination procedure. He did not realize that his customer would not in any way have been penalized by his filing of a Termination claim. He did not understand that his customer wanted him to present this charge as speedily as possible, so that he in turn could pass it on to the government for collection. Under the Law, the government, on approval of this claim, must promptly pay the prime contractor. Then the prime contractor

*Vice-President
The Thomas & Betts Co.
Elizabeth, N. J.

The purpose of the accompanying article is, to acquaint our readers with some of the problems inherent in contract terminations, as they have been experienced in actual negotiations.

The author, N. J. MacDonald, is Vice President of The Thomas & Betts Co., which company has throughout the Defense Program and War Emergency adhered steadfastly to its policy of selling through the wholesaler.

During the early period of Government controls of materials and production Mr. MacDonald served for an extended period as Electrical Industry Advisor to the OPM—Office of Production Management—without compensation.

Among Government officials and Bureau heads of that period, Mr. MacDonald did such an outstanding job in creating a better understanding and appreciation of the essentiality of the wholesaler that at its May 1942 convention at Hot Springs the National Electrical Wholesalers Association presented him with a silver punch bowl.

Termination proceedings have already engaged the attention of many manufacturers and wholesalers and will become more numerous as war production activities are shifted or terminated. We believe that Mr. MacDonald's observations will be found both interesting and helpful to all who now have or must expect to have termination negotiations.

The Editor

must pay his sub-contractor, in this case the wholesaler, and the wholesaler must pay his sub-sub contractor, in this case our company.

The situation is very well summed up in National Electrical Manufacturer's Association Bulletin No. 3, as follows:

"The end of the war will find the economy of the country in a situation somewhat like that of a theatre in which a large conflagration has started. The occupants, like the war contractors, had entered one by one, or in small groups, and now want to get out all at the same time. What is more, the war contractors not only want to get out in a hurry, they want and need to receive payment of whatever the government owes them. On its face the potentials for confusion would seem about as great as if the people fleeing the theatre all demanded their money back on their way out."

Cooperation Essential

At the present time, Termination policies and procedures are outlined in the "Baruch Uniform Termination Article For Fixed Price Supply Contracts," and also in the War Department Procurement Regulation No. 15, and "Accounting Manual TM 14–320." These are extremely technical regulations and manuals. Nevertheless, a thorough study of them should be made by manufacturers and their wholesalers, who will unquestionably be confronted with difficult termination problems.

The regulations and manuals cover the procedure to be followed on terminations and show the necessary forms to be filed. They also prescribe the various accounting methods and rules to be used in the determination of costs. These publications can be obtained from the Government Printing Office in Washington, or one may be able to get them from the local War Department Procurement offices.

It is strongly recommended that some very responsible person in each organization be assigned to handle such matters exclusively. It is a man-sized job to keep up with all the changing laws, regulations and procedures. (In our own organization, we have set up a separate department to watch every phase of it).

To date the government department which has had the most experience with terminations is the Ordnance Department of the U. S. Army. Recognizing the complications of the problem, the Army Ordnance Department has opened schools around the country in order to educate the contractors as to methods and procedures.

At the present time the "Baruch Termination Clause" and the publications mentioned, cover chiefly the rights existing between the government and the prime contractor. At these levels the thinking is fairly clear, but the relationship between the prime contractor and his sub contractors and the rights of the various tiers of lower subs, are matters which are puzzling the people at Washington. Some clear thinking on this may come out of the Capitol at any time. As a matter of fact, we understand that the Baruch-Hancock Committee is drafting a Uniform Termination Article which will cover all classes of sub contractors.

A Mutual Relationship

Meantime, you, as wholesalers, and we, as manufacturers, can well be studying the direct effect that these various termination orders will have upon our mutual business relations, because the fact that there is no direct contractual relationship between the government and the sub contractors makes a clear understanding extremely important.

This relationship must go far beyond the simple operation of the wholesaler having secured in his order all the proper termination provisions which would ordinarily protect him and his manufacturer. As the Legislation and Procedure now stands, the subs, except as hereinbefore mentioned, have no rights whatsoever against the government. Futhermore, the sub's claims have to be submitted all the way up the line to the prime contractor, who is often the wholesaler. It is like a Bucket Brigade—the pail starts at the well, full of water and is passed from hand to hand all the way up to the fire.

The wholesaler may at times be the prime contractor, at other times the sub contractor, and in some instances the sub-sub contractor. The fact that the manufacturer who sup-

plies the wholesaler is always one tier below him in the Termination ladder, makes it easy to see why the wholesaler should be as willing and as well prepared to represent his interests as he would his own, and this point cannot be emphasized too strongly. Once everyone thoroughly understands and performs every obligation in Termination Procedure, there is no reason whatsoever why the manufacturers' claims, which must be submitted through the wholesaler, cannot be quickly and amicably settled.

Uncle Sam wants to close out expeditiously and satisfactorily as many terminated contracts as possible. He says in effect to his prime contractors:

"Look, this is what you should do. Present your claim as a prime contractor, and the certified claims of all your sub contractors and sub-sub contractors. If the government has confidence in you, the various claims will be accepted at their face value provided they bear your certification."

If you want the actual wording of the War Department Procurement Regulation No. 15, here it is:

"(3) The contracting officer in his discretion may authorize the prime contractor to make settlements of sub contracts within some stated figure, where the contracting officer has confidence that such authority will be exercised fairly and reasonably. The contracting officer ordinarily should not require that settlements made by sub contractors with second tier and more remote sub contractors and suppliers be submitted for his prior approval, although he may do so and he may give such approval in any proper case when it is requested. Such settlements should usually be approved after they have been made unless in particular instances the settlements appear to have been made in bad faith. The contracting officer in requiring and granting approval of settlements of sub contracts particularly those made with the second tier and more remote sub contractors should act reasonably, without unnecessary formality and with recognition of the fact that as a practical matter, it is impossible for him to attempt to scrutinize such settlements in detail, except in cases where he has cause to doubt the good faith or reliability of the contractor (or other person claiming through him) making the settlement."

The above provision is now being given practical operation through the following clause now appearing in claims submitted by sub contractors to prime contractors, and by sub-sub contractors to their higher tier subs:

"The undersigned certifies that, to the best of its knowledge and belief, the foregoing statement with respect to purchase order(s) indicated above with ....., prepared for submission to said ..... and Contracting Officer acting in behalf of the United States of America, as itemized in the above summary and attached supporting schedules and explanations, is accurate, complete and final (all other claims with reference to said purchase order(s) being waived) has been prepared from the books of account and records of the undersigned in accordance with recognized accounting practices, includes (so far as costs are involved) only those costs necessary for the performance of said purchase order(s) and the charges as stated are fair and reasonable. The undersigned makes this certificate with full knowledge that the foregoing statement will be used as a basis for a settlement with the undersigned and that the amount of such settlement may be included in a claim for reimbursement under a contract with the United States."

All You Have To Do

When a manufacturer, in whom the wholesaler has confidence, presents his Termination claim, all the wholesaler has to do is to certify in the above wording and pass it along to his prime contractor or direct to the government as the case may be.

Just A Matter of Team Work

Apparently when the wholesaler is the prime contractor he can, as I understand it, very quickly pass and dispose of any claim of his manufacturer if he believes that claim is reasonable and justifiable. Likewise, where the wholesaler is a sub contractor, his relationship with his prime contractor should be such that his prime contractor will readily certify as to the correctness and reasonableness of the wholesaler's claim, which wholesaler's claim embodies the manufacturer's claim. The relationship existing between the manufacturer, his wholesaler, and the wholesaler's customer, should be such that if there is any dispute all the parties, including the government, can be quickly brought together and the matter negotiated.

This policy and procedure just discussed, is being recognized in the Contract Settlement Bill covering the Termination of War Contracts (S-1718) now pending before Congress (George-Murray Bill). Section 7 (B) of this Bill provides:

"Where in connection with the settlement of his termination claim by a contracting agency, any war contractor makes settlements of the termination claims of his sub contractors, the contracting agency shall limit its review of such settlements with sub contractors to the minimum amount compatible with the public interest. Subject to the regulations of the Director, any contracting agency (1) may approve, ratify, and authorize such settlements with sub contractors upon such evidence, terms and conditions as it deems proper; (2) shall vary the scope and intensity of its review of such settlements according to the reliability of the war contractor; the size, number and complexity of such claims, and other relevant factors; and (3) shall authorize war contractors to make such settlements with sub contractors without review by the contracting agency, whenever the reliability of the war contractor, the amount or nature of the claims, or other reasons appear to justify such action. The Director shall prescribe policies and standards to govern the contracting agencies in approving, ratifying, and authorizing such settlements in order to insure that their review of such settlements for these purposes is limited or omitted to the maximum extent compatible with the public interest. Any such settlement of a sub-contract approved, ratified, or authorized by a contracting agency shall be conclusive and binding upon the United States to the same extent as a settlement under sub-section (b) of Section 7 of this act, and the war contractor making it shall not be liable thereon except for his own fraud."

In my opinion, in order to take care of this very complicated Termination problem, the government will ultimately have to resort to settlements on an overall company-wide basis, somewhat like the procedure of overall renegotiation settlements. Along these lines, the following statement in the Journal of Commerce article of March 7th is worth noting:

"Twenty-five of the nation's large and medium sized war contractors have been selected as 'test cases' to determine the feasibility of applying the company-wide settlement basis to terminated war contracts."

The whole problem of Termination is changing from day to day. The electrical wholesaler should keep thoroughly posted. He will realize that he cannot afford to take the position that the responsibility of collecting on Terminated Contracts is solely his manufacturer's. They are both links in the same chain. Under these circumstances it would be highly desirable if all wholesalers assured their suppliers right now of fullest cooperation in cleaning termination claims.

Viewpoints on Residential Lighting

By Fred H. Pinkerton*

THE chief interest of manufacturers and wholesalers of residential lighting equipment in the building industry-postwar centers on the projected estimate of 8,000,000 homes to be built after the war, at varying rates of 1,000,000 to 1,500,000 per year. These estimates come from the U. S. Department of Commerce, NEWA's Postwar Planning Committee, and other sources.

Apparently every prognosticator is of the opinion that after the war is over and the residential building boom gets under way, present types of incandescent and fluorescent lighting will be offered for some time, while other illumination systems, perfected at greatly accelerated rate during the war will be made available later.

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In that connection, Charles G. Pyle, NEWA's managing director, stated recently that many member wholesalers he had interviewed looked forward to little change in lighting fixtures, wiring devices, lamps, etc., immediately after the war. Speaking from observations made in his present position, and from his long previous experience as general sales manager, lamp division, Sylvania Electric Products, Inc., Mr. Pyle predicted that within six months to one year after hostilities cease many new, some startlingly novel, sizes and types of lighting equipment can be expected.

Questioned on this subject, J. H. Blitzer, vice-president, Lightolier Company, New York City, expressed the belief that the great hope of the residential lighting industry-postwar is the return of overhead lighting to the home.

Mr. Blitzer contends that the consumer's need for proper residential lighting is so apparent today that an industry-wide promotional activity seems desirable. He said that of the four great changes in light sources recorded by history, the fourth and greatest change to date, is that to flourescent lighting, and that this especially points the way to the restoration of overhead lighting because fluorescent is a "natural" overhead light medium. He pointed out that long before "Pearl Harbor" overhead lighting was definitely on the way out. In new houses it was omitted, and in older homes it was removed.

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Proponents of overhead lighting feel that people have been living in the "half-dark," that without overhead lighting home consumers of electrical power do not get the lighting efficiency that they are paying for, that they are not getting the minimum light for illuminating that engineers and physicians know is essential for better sight and to prevent accidents. They point out that homes that contain nothing but portable lighting equipment run counter to natural illuminating law, and one of the principal advantages of the suggested whole industry-wide overhead lighting promotion plan is that it not only benefits consumers very materially, but every branch of the electrical industry as well.

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In a recent interview in Washington, L. W. Davis, general manager, National Electrical Contractors Association, stated that carefully planned promotion of overhead lighting would undoubtedly result in increased home-lighting equipment and installation sales for members of NECA. He said his organization had planned with the NECA-IREW Post War Planning group to include a definite program for promoting lighting sales in anticipation of the expected expansion in the building industry.

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Much has been written about obsolescence in this field. A chart which appeared in WHOLESALER'S SALESMAN in the May 1940 issue showed clearly the tremendous market this represents for lighting sales. The state of obsolescence then shown remains constant because shortly thereafter came defense and war production which prevented normal peacetime sales and developments.

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*Public Relations Counsel
National Electrical Wholesalers Assn.
New York City

Type GRF

CONDULETS

(CONDULETS are manufactured only by CROUSE-HINDS)

Type GRF Condulet for Surface Mounting. With Mounting Feet.

Type GRF Condulet for Flush Mounting. With Slotted Holes for Nailing to Concrete Forms.

Adaptable — many uses. Takes blank or hub covers; terminal blocks; many Condulet accessories; standard 4" outlet box covers and wiring devices. Can be used as a

Junction box Condulet
Plug receptacle Condulet
Lighting fixture Condulet
Fixture hanger Condulet

Convertible. At any time after installation Type GRF Condulets can be quickly converted to other uses, as all equipment is interchangeable.

Cast Feraloy (semi-steel). Strong and rigid. Wide gasket surface for tight and weatherproof assemblies.

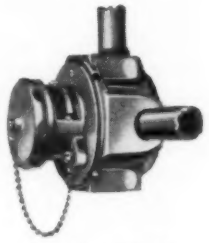
Bosses for drilling and tapping on sides and back. Will be furnished blank or factory tapped with tapered threads in any arrangement for ½, ¾, or 1-inch conduit.

2 Styles. For flush or surface mounting.

3 Sizes. Inside depth, 1½, 2¼, or 3 inches.

Listed in Condulet Catalog No. 2500, Section 15, Page 31.

Flexible Cushion Fixture Hanger



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A Nationwide Distribution Through Electrical Wholesalers

Ceiling Type Vaportight Lighting Fixture

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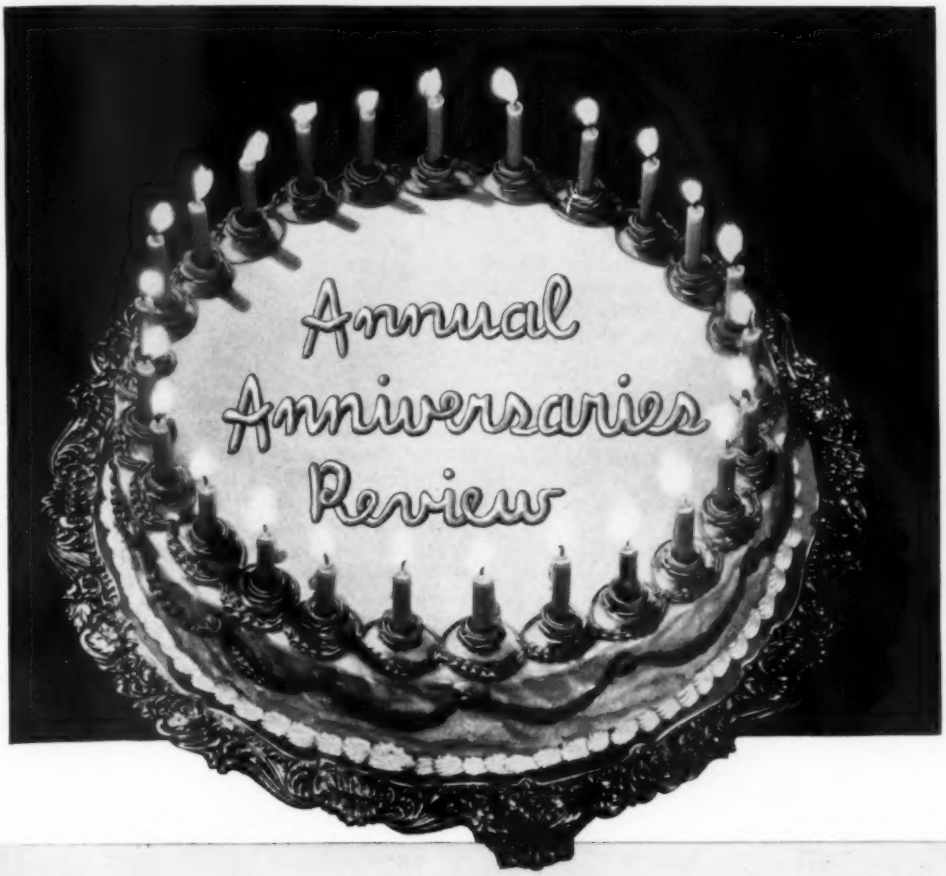
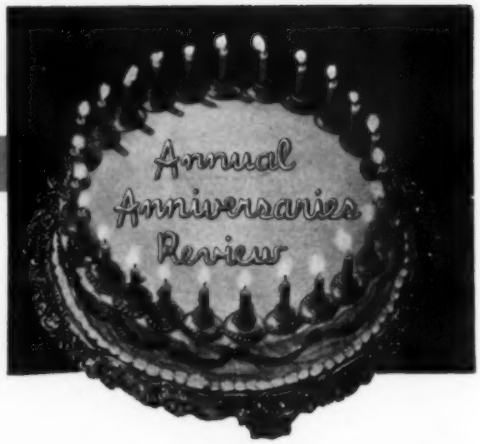


IN today's shifting and war-torn world, it is good to look to the past and to realize once again that the record of the electrical industry is one of virility, stability and unbelievable growth.

As all history is the story of the individuals who lived it, so the history of the electrical industry is the story of men who conquered its problems—of those, who as manufacturers, developed its products, and of others, who as wholesalers, took them to market.

Some of today's electrical concerns were engaged in manufacturing other products long before the electrical industry was born; others entered the field while the industry was still in its swaddling clothes, and grew with it; others came into being with the invention of specific new electrical products, new applications, new expansions, and have kept abreast of its advances ever since.

This Annual Anniversaries Review is published as an expression of our appreciation for the cooperation which electrical manufacturers have extended to wholesalers and to this publication in the past. Our hearty congratulations and sincere good wishes for continuing success go to those manufacturers who celebrate an anniversary—divisible by 5—this year.



80 YEARS 1864-1944

P. Wall Mfg. Supply Co.—The history of the P. Wall Mfg. Company goes back to eighty years ago when Patrick Wall founded the company in 1864 at Pittsburgh, Pennsylvania. From a small beginning, the company has developed through the years to its present size, manufacturing steel stampings, brazed and welded steel oilers, blow torches and furnaces.

70 YEARS 1874-1944

F. D. Kees Mfg. Co.—As a young man, F. D. Kees came out of the East to Nebraska to spend the winter of 1874 with his brother. Before he left he had invested his meager capital in a $20.00 gun shop. In rapid progressive strides, the Kees Mfg. Co. grew from a $20.00 gun shop, to a hardware store, to the modern factory of today. John A. Kees and Daniel Kees, sons of founder, are connected with the company today.

65 YEARS 1879-1944

Durant Manufacturing Co.—Sixty-five years ago in a barn in his own back yard, Walter N. Durant started making counting machines for flour mills. Through all these years this company has continued the manufacture of counting and measuring machines, improving and modernizing them to meet the requirements of the day.

50 YEARS 1894-1944

The M. B. Austin Company—Founded by M. B. Austin, Sr., in Chicago, when gas was still the most widely used source of illumination, M. B. Austin Company grew to prominence, supplying the ever-growing demand for reliable electrical goods. M. B. Austin, Jr., son of the founder is now president of the company. Arnold Friend who started with the firm fifty years ago, as office-shipping and errand-boy, is today general manager and treasurer.

S. H. Couch Company, Inc.—In August 1894, Samuel H. Couch and J. C. Williams came from New York to Boston where they entered the private telephone business. About the end of 1894 another partner was taken in, R. L. Whitman, and the company became Williams, Couch and Whitman Co. Whitman retired from the business in 1897 and the S. H. Couch Company was formed in 1901 with S. H. Couch and his brother, William Couch, as partners.

Oliver Iron and Steel Corp.—In the days when the canal boat was still an accepted mode of transportation, and railroads were just beginning to come into prominence, Henry W. Oliver, William J. Lewis and John Phillips established the Oliver Iron and Steel Corp. in Pittsburgh, Pa. It was not until 1894 that this company began producing pole line hardware. Making constant improvement in plant facilities and products over the years, the modern Oliver Iron and Steel plant today employs the most up-to-date methods of manufacture.

Porcelain Products, Inc.—George Brunt and George O. Anderson founded the company in 1894 in the "knob and tube days" when every wiring job virtually revolved around these products. For the past fifty years Porcelain Products has devoted all its effort toward the development and production of porcelain products and today is recognized as one of the world's large producers.

Stromberg-Carlson Telephone Mfg. Co.—The history of the company dates back to 1894 when Alfred Stromberg and Androv Carlson each pooled $500 plus their design knowledge and experience gained at the Ericcson telephone plant in Stockholm, Sweden, and began manufacturing telephones. In 1901 the company moved its shops and offices from Chicago to Rochester, N. Y., where it has since been located. Stromberg-Carlson is well known in the industry today as manufacturers of radio as well as telephone apparatus, cables and supplies.

45 YEARS 1899-1944

National Enameling and Stamping Co.—The company was founded by the Kieckhefer brothers in 1899 at Milwaukee when they merged several companies whose histories date back to the days before the Civil War. Through the years the company has grown in size and importance, now having branch offices in many of the leading cities throughout the country. Alfred J. Kieckhefer, son of the first president of the National Enameling and Stamping Co., is today the president.

Sangamo Electric Company—Jacob Bunn, R. C. Lanphier, and Otis White founded the company at Springfield, Illinois in 1899. While in the beginning only a.c. meters

were built, by 1905 work had been started on d.c. watthour meters. By 1929 the company started manufacturing electrically wound and operated time switches that were introduced and marketed through the electrical wholesaler.

The Trumbull Electric Mfg. Co.—On October 15, 1899, John and Henry Trumbull, Frank Wheeler, later joined by Stanley Gwillim, moved into a little wooden building located on the site of one corner of the present factory at Plainville, Connecticut, with two or three helpers to manufacture quarter-turn porcelain rosettes. From the manufacture of one product, the Trumbull Company over the years has developed a comprehensive assortment of material for complete systems of interior electrical distribution and control. All original founders have shared in the responsibilities of the executive management of the company since its beginning.

40 YEARS 1904-1944

Dossert and Company—The five men responsible for the organization of the company that took place in New York City are John J. Dossert, J. L. Holland, H. W. Hubbard, Mr. Minahan and H. B. Logan. Dossert and Company has remained in business for the past forty years and proudly claims that it is the originator of the pressure (solderless) connector and terminal for electrical conductors. Today H. B. Logan is president, H. W. Hubbard is vice president and John E. Minahan, son of one of the founders, is treasurer.

Lightolier Company—The Lightolier Company, manufacturers of lighting fixtures and lamps, was organized in New York City in 1904 by Bernhard Blitzer, as president; Charles A. Gottesman, as treasurer; and M. D. Blitzer. Through its forty years of service to the industry, the company has retained those same executives, later adding to the staff J. H. Blitzer, son of Bernhard Blitzer, as vice president, and Edward Blitzer, son of M. D. Blitzer, as assistant sales manager.

McGill Mfg. Co. Inc.—The McGill Mfg. Company, manufacturers of electrical specialties, was started by James H. McGill and H. W. Harrold in 1904 at Chicago. Both men are connected with the company at the present time, while Charles S. McGill, son of founder, now is president.

Schwarze Electric Co.—This company was incorporated in 1904 by Carl J. Schwarze, P. C. Reck, John Bird, Amos Kels, Eugene Cook, Dr. W. J. Marshall, and J. S. Sampson, with headquarters in Adrian, Michigan. P. C. Reck is the only one of the original founders who is still connected with the company in an executive capacity. Through the years Schwarze Electric has become one of the leaders in the signaling and communication field, having continuously added new products to its line and improved the old.

Wilmington Fibre Specialty Co.—John W. Morris, a pioneer in fibre fabrication, began operating his concern back in 1904 at Wilmington, Delaware with the idea of fabricating fibre parts to the individual specification of the consumer. Through the years the company developed many new uses for vulcanized fibre in electrical products. Son of the founder, John W. Morris, Jr., is now the president.

35 YEARS 1909-1944

C. M. Hall Lamp Co.—From its earliest days—when bicycle lamps were a standard commodity—the Hall Lamp Company, organized by C. M. Hall, W. F. Anklam, J. F. Hartz, John Leggett and Joseph Boyer in Detroit, Michigan, has grown with the automotive industry and helped solve some of its lighting problems. With the company today are J. F. Hartz and his son, Boynton; W. F. Anklam and his son, Charles.

Minerallac Electric Co.—The company was organized in 1909 at Chicago by Messrs. L. A. Ferguson, J, H. Goehst, Peter Junkersfeld and D. A. Bronson. None of the original founders are with the company at the present time but A. L. Johnson, who joined the company thirty-three years ago, is today president. Manufacturing electrical specialties, the company continues to sell through the electrical wholesaler, a policy that began when it first started in business.

Reliance Automatic Lighting Co.—With the filing of his first time switch patent, Benj. F. Flegel founded the Reliance Automatic Lighting Co. in 1909 at Warren, Ohio. The company has concentrated almost exclusively on the manufacture of automatic time switches but is today producing war materiel and equipment for the U. S. Army Signal

Corps. While Mr. Flegel Sr. continues his research, and development of new products, his son D. F. Flegel acts as general manager.

Webster Electric Co.—T. K. Webster of Chicago, Illinois, organized the Webster Electric Company in 1909 at Tiffin, Ohio, to manufacture magnetos for internal combustion engines and made them for several years. Later the company disposed of this line and added sound systems, amplifiers and intercommunicating systems. None of the original founders or descendants are with the company today.

30 YEARS 1914-1944

Acorn Insulated Wire Company, Inc.—In Brooklyn, New York, Walter R. Prosser (now deceased) started the Acorn Insulated Company in 1914. None of the original founders are with the company today but Mary C. Prosser, widow of the founder, still is connected with the company.

Bussmann Manufacturing Company—Thirty years ago two brothers, Al. B. and Harry T. Bussmann started in business manufacturing fuses in St. Louis, Mo., with an organization that consisted during the first year of just the two officers and four employees. The company has today several hundred employees and is known throughout the industry as a highly successful concern maintaining its original policy of selling through wholesalers. Meanwhile four other brothers of the founding team; Frank H., Joe A., Lee J. and Ray F. Bussmann have joined the company and in 1935 Harry T. Bussmann Jr. also was elevated to membership on the Bussmann team.

The Mid-West Chandelier Co.—Ben Lefkovitz, founder and president of the Mid-West Chandelier, undertook to expand the use of bronze in popular-priced residential fixtures, starting in business in 1914 at 31st and Main Street, Kansas City. Since then the company has always manufactured lighting equipment, claims to be among the first to offer a line of fluorescent lighting fixtures. The founder's son, Sidney Lefkovitz, secretary-treasurer of the firm is now in the armed services.

25 YEARS 1919-1944

Electric Vacuum Cleaner Co., Inc.—When the Company was incorporated under its present name in March 1919 at Cleveland, Ohio, Julius Tuteur became president. His son, John Tuteur, succeeded him as president in 1942 and although Julius Tuteur is 81 years of age, he is still active in the company as chairman of the board. In peacetimes the company makes a complete line of electric vacuum cleaners but at the present time the company's facilities are devoted chiefly to war work.

Moe-Bridges Corp.—Ever since this company was first founded at Milwaukee in 1919 by C. A. Bridges, F. C. Conrad and Henrik Moe, it has manufactured lighting fixtures. Since Pearl Harbor, the company has discontinued manufacturing its regular line of products and has concentrated on war work. After "Victory Day," Moe-Bridges hopes to serve the industry with new lines of products and is already developing new designs for postwar release.

The Steelduct Co.—In 1919 William B. Curtis established the Steelduct Company at Youngstown, Ohio, where it has remained ever since. Two years later, J. H. Collier joined the Corporation and is today both president and treasurer. This year 1944, the Steelduct Company, manufacturers of conduit fittings, is proud to celebrate its 25th anniversary of service to the industry.

20 YEARS 1924-1944

Goodrich Electric Company—From the beginning of his experience in the electrical industry, William M. Goodrich recognized the need for efficiency and high standards in lighting so he left a connection of long standing to organize the Goodrich Electric Company, at Milwaukee, for the manufacture of high-efficiency equipment. Steady increases in business have necessitated two moves to larger quarters—the last was made in 1940 when a large modern factory was erected for the Goodrich firm. Both original founders, W. M. Goodrich and W. J. Goodrich, are with the company today.

Liberty Bell Mfg. Co.—A. H. Ashwell and C. E. Heffelman started in business in 1924 at Minerva, Ohio, producing 400 bells per day and in 1928 had increased production to 3,000 bells per day. At this time bell transformers were added to the company's line and in 1934 chimes were added. C. E. Heffelman is with the company today as president and general manager.

Versatility!
The Art Metal Company's ability to produce a complete range of Lighting Materials can definitely help you through the service, convenience and economy achieved by a "one source supply"
Illustrated are a number of types which take care of an unusually wide range of lighting requirements.
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Manufacturers of Engineered Lighting and Ultraviolet Equipment
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THEY ALL SAY "TAPE" ON THE BOX....

SAYS TAPE ON THE JOB!

How can you tell the difference . . . how can you always be sure of the highest quality tape without experimenting around?

The answer is easy: Ask for *Gold Seal* – by name – every time you order tape. You'll get greater tackiness that gives a firmer, longer-lasting bond. Higher tensile and insulating strength. A non-raveling tape that doesn't "peel" or dry out. You'll find Gold Seal uniform all the way from the first strip off the roll to the last!

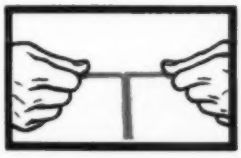
Try Jenkins *Gold Seal* tape on your next tough job. Convince yourself that there's as much difference between tape as between other materials and tools of your business! Jenkins Bros., (Rubber Division), 80 White Street, New York 13, N. Y.

Other Jenkins Bros. tape products include Diamond Seal Friction Tape, and Diamond Seal Rubber Tape, which meet ASTM and Federal specifications.

Convince yourself

MAKE THIS EASY TEST!

1 Tear two 6 inch strips from a roll of *Gold Seal* tape and stick faces together. Do not apply pressure.



2 Pull the strips apart slowly, forming a "T". Feel what a stiff pull this takes. Note long adhesion "teeth" at point of separation.

JENKINS *Gold Seal Tape*

REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros.

FRICTION and RUBBER TAPES

MADE BY JENKINS BROS. . . . MAKERS OF FAMOUS JENKINS VALVES

New INSTA-START Fluorescent Industrial

Instant-Positive Starting has No Starter Switches . . . Starts at 0° Temperature . . . Starts at Lower Voltages . . .

This new super-powered lighting unit operates standard 40 watt and 100 watt Fluorescent Lamps. Its insta-start ballast is made and guaranteed for a full year by a leading manufacturer of electrical transformers.

Insta-start units reduce maintenance by the elimination of starter switches. Turns on and off like an incandescent lighting fixture.

Will operate as low as 85 volts, which is important in plants where load capacities are a problem.

Insta-start units will operate at zero temperatures. Lamps will not blow-out in cold drafts.

Investigate this new Fluorescent Insta-start lighting unit today. Obtainable for immediate delivery.

INSTA-START OUTSTANDING 50-A-SERIES FEATURE . . .

1. It's easier to install with this new rigid simplified construction.
2. Entire wireway and ends may be exposed quickly, without taking fixture down.
3. May be surface-chain or stem mounted singly or in continuous runs.
4. Exposed ballast gives longer life and cooler operation. Inverted under channel.
5. Special K.O. for pull switch is provided in lamp holder cover.
6. Complies with all W.P.B. and U. S. Bureau of Standard regulations.
7. Reflectors of masonite—formed and finished under exacting specifications in our own plant.
8. Underwriters' Laboratories approved equipment used in all these fixtures.
9. Union Made—International Brotherhood of Electrical Workers, A. F. of L. Bear their label.

Open and Closed Type Commercials

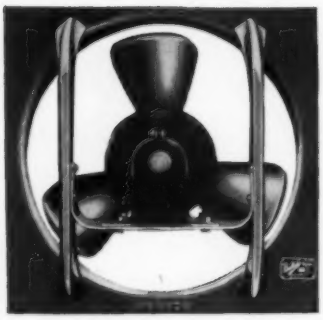
A new outstanding line of L. P. I. Commercials, ideally suited for drafting room, office or other essential locations, is now available with either Conventional or Insta-Start Ballasts. Write today for bulletins describing these new fixtures!

LIGHTING PRODUCTS INC. HIGHLAND PARK • ILLINOIS

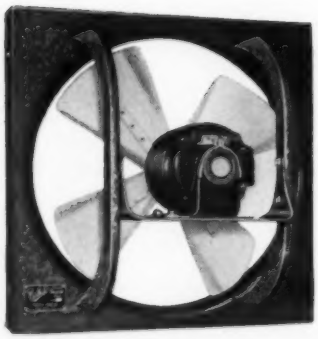
Sell "Buffalo" FANS

BUILD PRESTIGE
MULTIPLY PROFITS

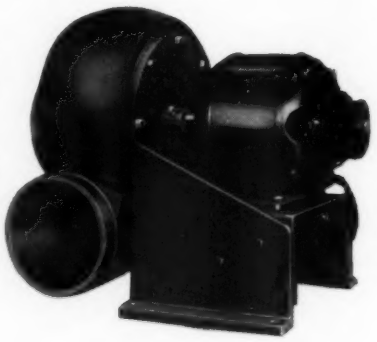
★ **Buffalo's 60 years of fan building experience is an asset to your sales program. Capitalize on it by talking about Buffalo dependability and the Buffalo policy of building the right fan for each specific installation. The comprehensive line of Buffalo Fans makes available to you a model to recommend to meet every customer's requirements.**



Buffalo "BREEZO" Fans —Sturdily constructed, light-weight fans of the panel type for general ventilation. Quiet and dependable, requiring very little maintenance. Available in 6 sizes.



Buffalo "BELT-AIR" Fans—Large capacity, low in cost, extremely quiet. Simple, rugged construction, powered by motors of standard manufacture. Available in 5 sizes.



Buffalo "BABY CONOIDAL" Fans. One of the most versatile fans ever developed. Skillfully constructed, with improved wheel and housing designs, insuring high efficiency operation for ventilating, exhausting, cooling and special services. Complete range of motors, speeds and capacities.

Buffalo "E BLOWERS" — These units are designed chiefly for installation on oil furnaces, forges, etc., when relatively small quantities of air are required at comparatively high pressures. Husky, direct-connected outfits, Buffalo "E Blowers" are offered in a wide range of capacities.

FULL DETAILS IN BULLETIN 3222-B

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Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

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TIME SWITCHES

ARE NOW AVAILABLE AND DELIVERY IS PROMPT ON RATED ORDERS

The dependability of RELIANCE Automatic Time Switches has been proved in emergency as well as in normal times. They are giving complete and reliable service under many varied conditions—a factor of paramount importance particularly in these times when constant good service is so essential.

RELIANCE Switches are easy to install, economical in operation, and meet a wide variety of needs. The present sales possibilities should interest you—tap this rich source of today's business.

Catalog and price sheets available on request.

BADGER Synchronous Automatic Time Switches

Heavy duty time switch with capacity to meet a wide variety of requirements.

RELIANCE Model W Synchronous Electric Time Switches

Completely automatic — extremely simple, compact, economical—three types cover practically every requirement. Built to highest standards of accuracy.

RELIANCE
AUTOMATIC LIGHTING COMPANY
1907 MEAD STREET
Racine, Wisconsin

A DOUBLE SERVICE

We quote from a general letter sent early this year by the Hubbard organization to Pole Line Hardware buyers.

"Gratefully; not boastfully we think of the citations from our Government and the compliments from our friends in the Utility field for the **double service** we have rendered since Pearl Harbor. Never before in our one hundred years of existence has our organization been subjected to such a severe test of service."

We now acknowledge, publicly, our indebtedness to you, the Electrical Wholesaler, who has so ably supported one phase of our "double service". While we have been helping Uncle Sam and our boys, you have helped us tremendously to serve the vital home front. Your stocks, your consultation, your distributing organization are factors without which we could not have fulfilled our Double Service.

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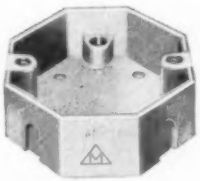

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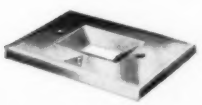

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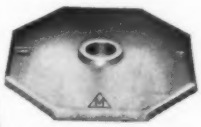

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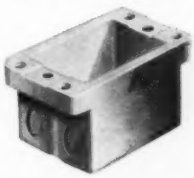

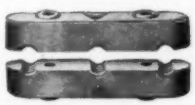

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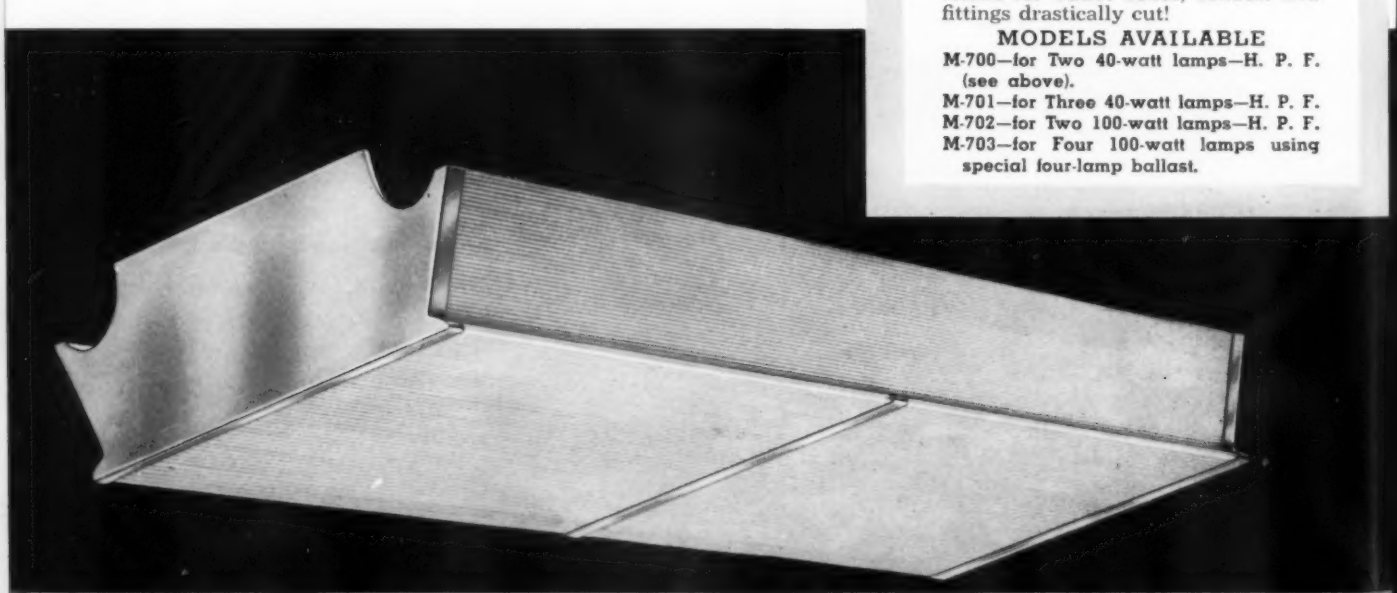

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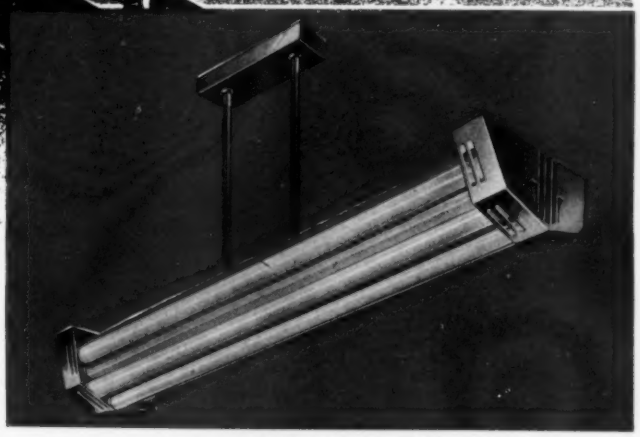

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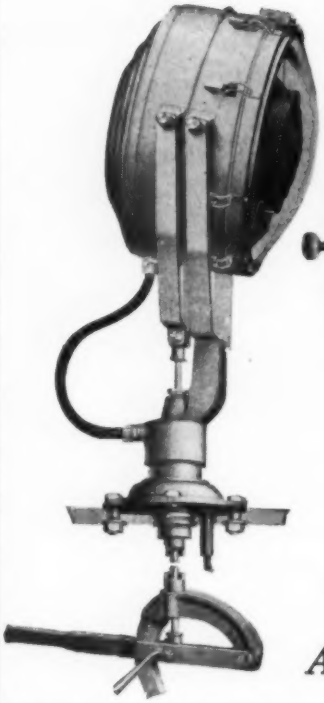

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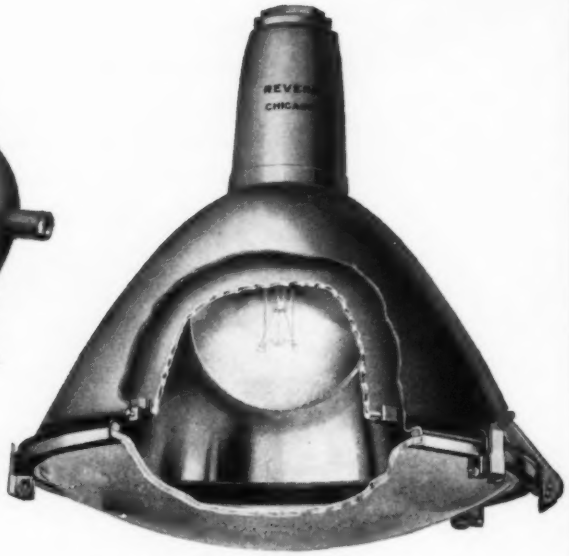

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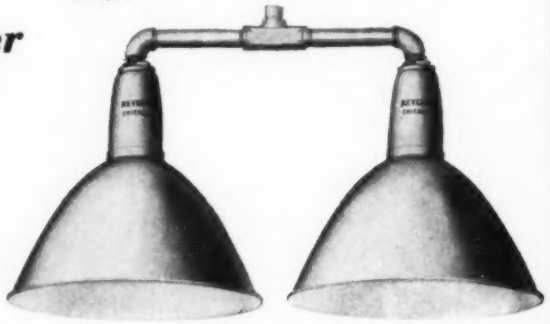

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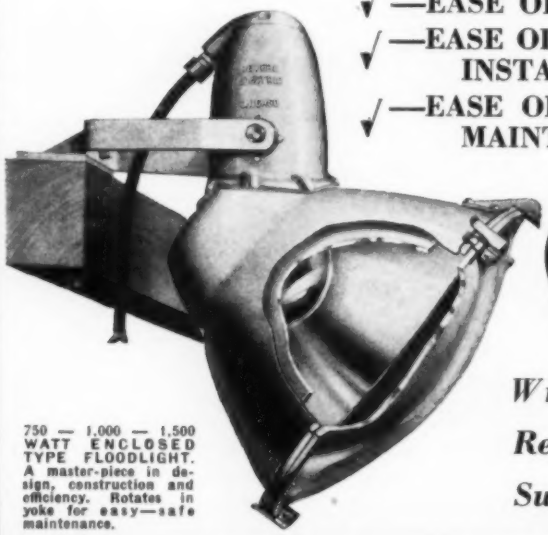

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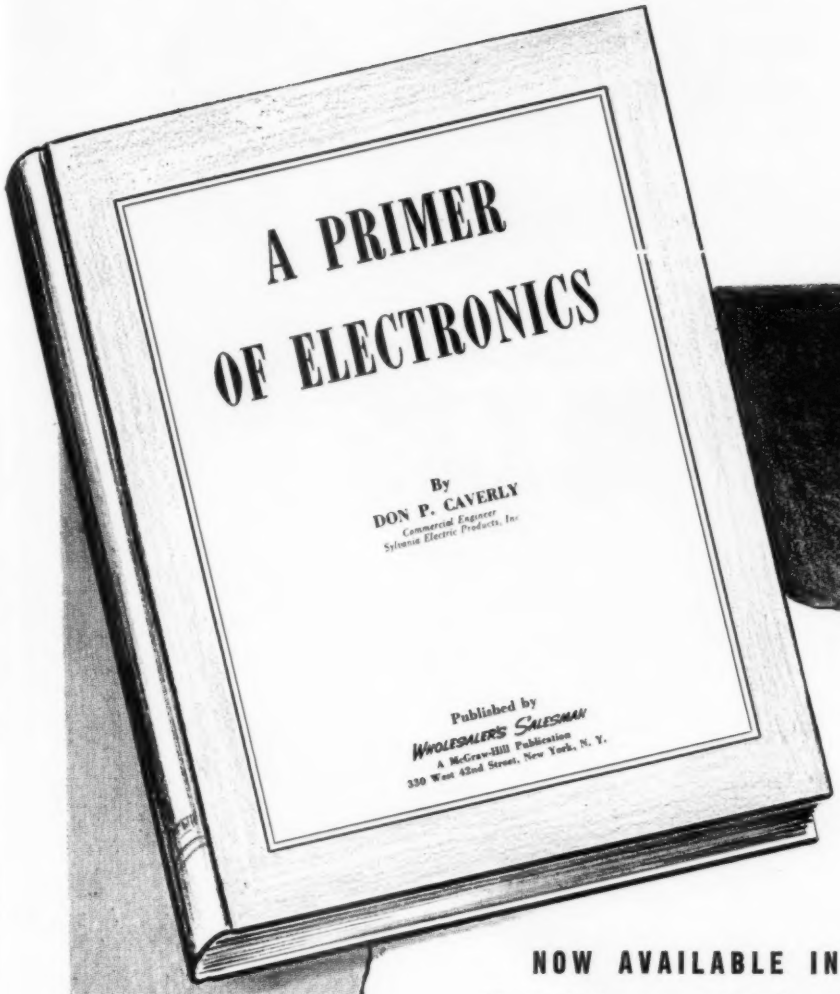

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PART IV

Basic Electronics

Chapter 14

For Summary of Preceding Chapters
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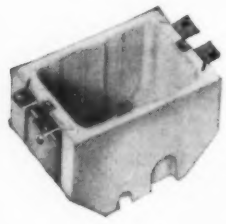

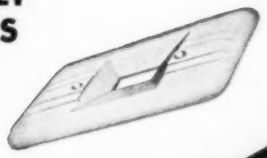

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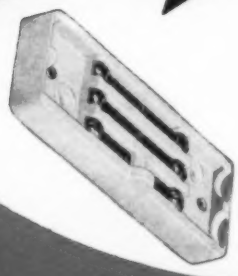

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In completing publication of Don Caverly's PRIMER OF ELECTRONICS with this installment we wish to acknowledge again our sincere appreciation of the fine cooperation that we have received from SYLVANIA ELECTRIC PRODUCTS, Inc., particularly in permitting the use of many copyrighted illustrations and in supplying us with drawings, photographs and data, which Mr. Caverly wished to make part of this work.

The EDITOR

PART IV...BASIC ELECTRONICS

Chapter 14

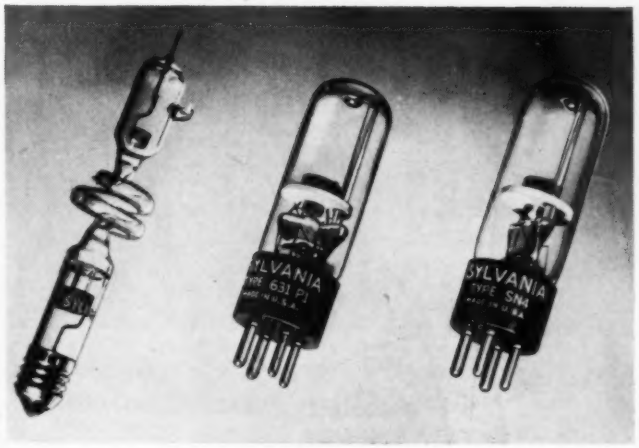
Strobotrons

The strobotron first became generally known in conjunction with the science of high speed photography as developed by Dr. Harold E. Edgerton and his colleagues at the Massachusetts Institute of Technology. Nearly everyone has seen Edgerton's fascinating pictures of a splash of water, a football being kicked, a bullet piercing an incandescent lamp, humming birds in flight, and other examples of "stopping" high speed motion with remarkable photographic detail.

The technique involves many things, not the least of which is a light source capable of extremely rapid and distinct flashes of only a few millionths of a second duration. Incandescent filaments, of course, do not cool sufficiently even at 60 cycle frequency to show appreciable flickering and although fluorescent lamps do flicker to some extent at 60 cycles, there is a "hold over" or "lag" in the fluorescent compounds which would practically eliminate distinctive flicker at higher frequencies. Therefore, neither of these sources has been used specifically as sources of high frequency flashing light.

A strobotron is a low pressure discharge tube utilizing a cold cathode coated with caesium. In the smaller types, neon gas is used which produces the characteristic orange-red light. The larger tubes may be filled with argon, krypton or a combination of these and other rare gases and the light produced is usually a brilliant blue-white. The strobotron's primary function, as indicated above, is to provide a source of extremely rapid and distinct flashes of light or, by virtue of the discharge, pulses of current.

The frequency of the flashes can be controlled either by rapid mechanical interruption of the circuit or by rapid capacitor discharges. In this way, several thousand separate and distinct flashes or pulses per minute can be obtained, or the frequency can be reduced to one per minute or less if desired.



Left, one type of discharge tube used to produce stroboscopic light of relatively high intensity, employed in high-speed photographic work. Center and right, two tubes used for the study of stresses and strains in rotating machines.

In high speed photography, the flashes of light act as a camera shutter would, so that it is possible to obtain one exposure of a fast moving object of only a few millionths of a second duration, or a large number of exposures per second of the same object. Of course special film and equipment are used and when developed and printed the photographs show the object as it was during the instant of time that the stroboscopic light fell upon it, or the successive positions of the object at each flash of the strobotron.

For the study of rotating or vibrating machinery, the strobotron's flashes are synchronized with the rotation or vibration frequency so that the machine appears motionless. For example, if an electric fan is turning at the rate of 1200 r.p.m. and a strobotron is made to flash 1200 times per minute or in multiples of that figure, the flashes will occur when the fan blades are always in the same position. Thus, although

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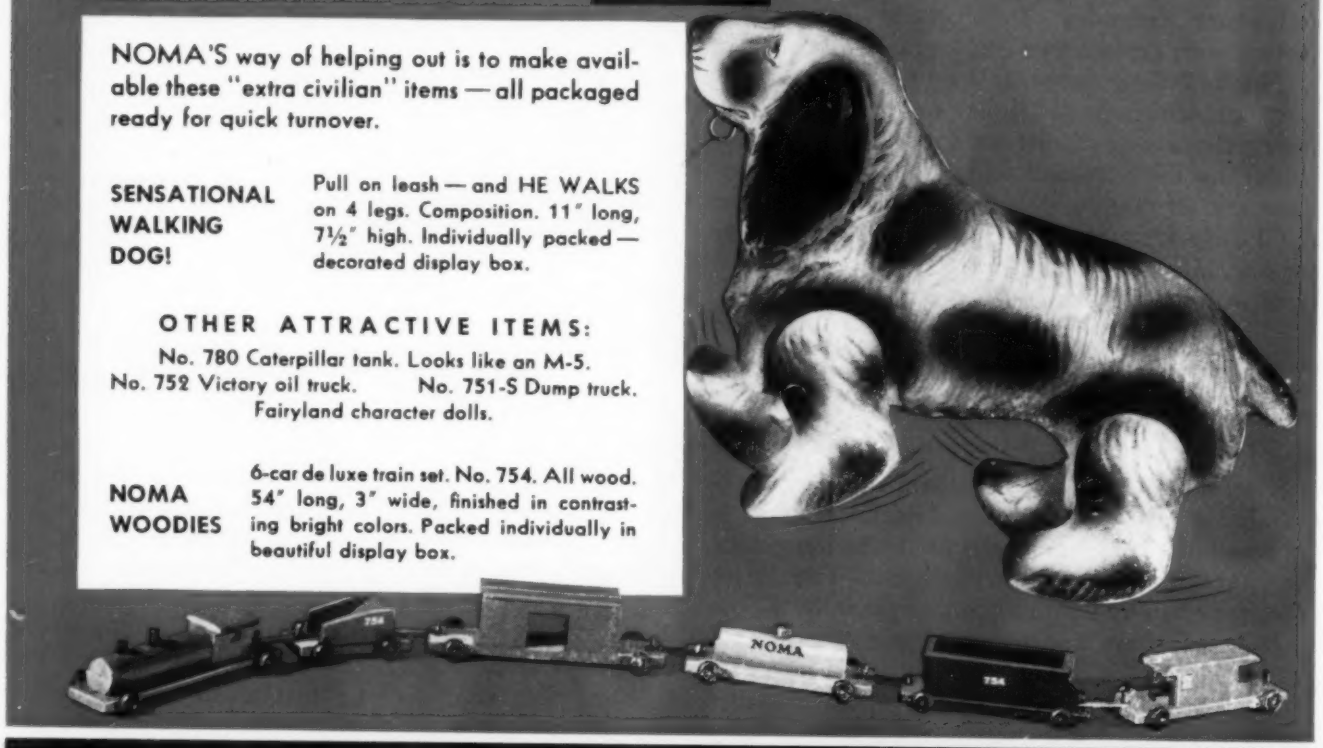

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the flashing frequency and fan rotation is too fast to be distinguished by the eye, we see the fan always in the same position by virtue of the stroboscopic light so that it appears to be standing still. Airplane propellors are studied this way so that stresses and strains, which may appear only while they are turning at high speeds, can be determined, and corrective measures taken in propellor design. Stroboscopic light is used in hundreds of industries for problems similar to the propellor applications. It has aided considerably in certain ballistics studies.

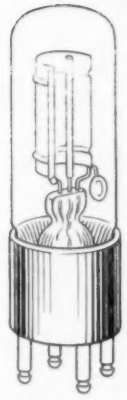
In the section devoted to Supersonics in Chapter 11, mention was made of the strobotron as a means of controlling supersonic impulses for determining marine depths. In applications of this nature, the current of the strobotron's discharge is used rather than the visible light which results from it. Very short packets of supersonic waves are sent to the ocean bottom where they are echoed back to a receiver. These packets or impulses must be of extremely short duration to be properly timed and individually distinguishable, and the strobotron functions as a "trigger" tube in this respect by controlling the frequency of the impulses as well as their time duration.

Photo-electric Tubes

Photo-electric tubes are converters of radiant energy into electric current. The radiant energy wavelengths to which they are sensitive embrace the infra-red, visible light and ultra violet regions, and the process of conversion bares some resemblance to the reverse of the process by which light is produced in a glow lamp.

A photoelectric tube may be either vacuum or low pressure gas-filled and is comparatively simple in construction. It consists of a cathode which emits electrons when radiant energy impinges upon it. The cathode is usually in the form of a plate, curved so that the greatest amount of electron flow from it will reach the anode which may be a small rod placed upright at about the focal point of the curve. There are other forms of cathode-anode mounting but all function in about the same way—to convert radiant energy into electric current.

Radiant energy comes to us in waves of separate and distinct little quantity units called *photons*. There are definite relationships between the energies of these photons at various wavelengths and the number of electrons they cause the cathode to emit when they fall upon it. Since



Typical photo-electric tube construction.

the shorter wavelengths have photons of more energy, ultra violet is basically a better producer of photo-electric emission than visible light, and visible light better than infra-red.

The cathodes used in photo-electric tubes are coated with materials such as caesium, potassium and others which reduce the barrier energy at the cathode surface and allow electrons to be emitted more readily. The coating used depends upon the wavelength of energy to be converted into electron emission (current flow from the cathode to the anode), since the different materials have different characteristics with respect to the wavelength of energy falling upon them. Thus, photo-electric tubes are designed for a number of wavelength regions. Those sensitive to visible light would not be suitable for infra red or ultra violet.

Photo-electric tubes or "electric eyes" as they are popularly called, have hundreds of commercial and industrial uses. Since the door opening application is familiar to a great many people, we can discuss it briefly.

A thin beam of light is placed across the path of traffic to a door so that it strikes the cathode of a photoelectric tube (or a photocell) which is on the opposite side of the path from the light source. As long as this light beam remains uninterrupted, an electron current flows from the cathode to the anode in the tube. This current, when amplified, operates sensitive relays, contactors and other mechanism and keeps the door closed. When the beam is interrupted by someone approaching the door, the current ceases to flow so that the door is no longer held closed and an air pressure or mechanical device swings it open.

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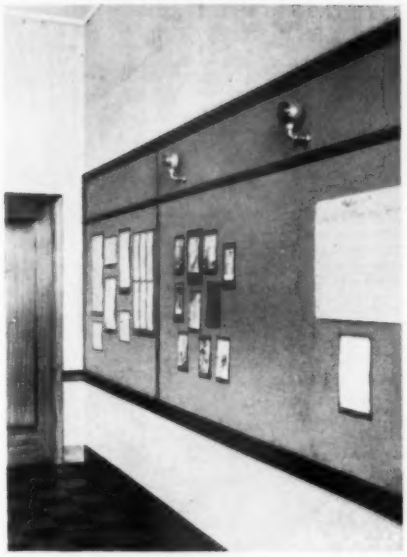


The two photocells mounted on the rear wall of this schoolroom control the illumination within the room in accordance with the degree of natural light available.

the electron flow from the cathode to the anode of a photoelectric tube is either stopped or created, is the basis for practically all "electric eye" installations utilizing a tube to intercept the light. Another method involves a light sensitive cell called a photocell. The photocell is not a tube but consists rather of a plate of some material such as copper oxide or selenium which has the property, when in conjunction with other elements making up the cell, of generating small currents when light falls upon it. The movement of electrons occurs when light strikes the sensitive surface. The rest of the circuit is somewhat similar to phototube circuits, consisting of amplification (when necessary) and a series of relays and contactors for controlling the installation.

The use of photo-electric tubes and cells for machinery control, lighting, sorting or inspecting operations, smoke control and hundreds of other operations is rapidly increasing. In Lynn, Massachusetts, three large elementary schools have all of their classroom lighting controlled photo-electrically in accordance with the amount of natural daylight available during the day. Two of the buildings are equipped with photo-electric tubes and one with photo-cells, both types having proved satisfactory. There are dozens of other schools throughout the country similarly equipped.

Widely used instruments such as exposure meters and footcandle or light meters employ selenium cells to intercept light and convert it into electric current so that readings can be made quickly and accurately.

Cathode Ray Tubes

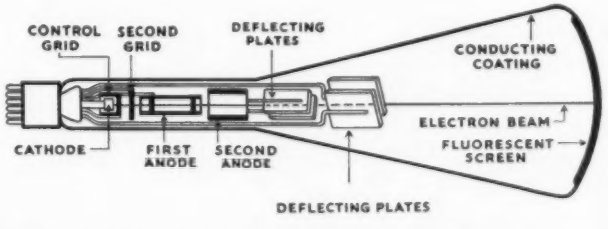
Cathode ray tubes were discussed to some extent in Chapter 11 under the subject of Television Reception. However, since they are used in the oscilloscope and for other purposes, a further discussion here is advisable.

It has been explained how a thin needle-like stream of electrons is shot from the "electron gun" in a cathode ray tube, and how this stream is deflected either electromagnetically or electrostatically by two pairs of plates between which it must pass. (For the sake of simplicity we can call one pair upper and lower, and the other pair left and right.) Electrons, being negative, are repelled from a plate having a negative charge and attracted to one of positive charge.

If an alternating current is connected to the upper and lower reflecting plates, the plates will change their polarity with each alternation, reaching their maximum and minimum values in accordance with the sine wave characteristics of the generator (see Chapter 3—A.C. Generators). Since the electron stream is being deflected by each of the two plates in accordance with the alternating voltage impressed upon them, it can be seen that the stream will keep tracing a straight vertical line at the center of the fluorescent screen at the end of the tube.

Now if we can deflect the stream from side to side by means of the left and right plates at the same time that it is moving up and down, and do it once and for every complete 360° rotation of the generator, the straight vertical line we had before becomes spread out into a wave extending from one side to the other across the fluorescent screen. This wave will be a true indication of the wave form provided by the generator.

The left to right sweep of the electron beam



Simple diagram showing the principal elements of a cathode-ray tube.

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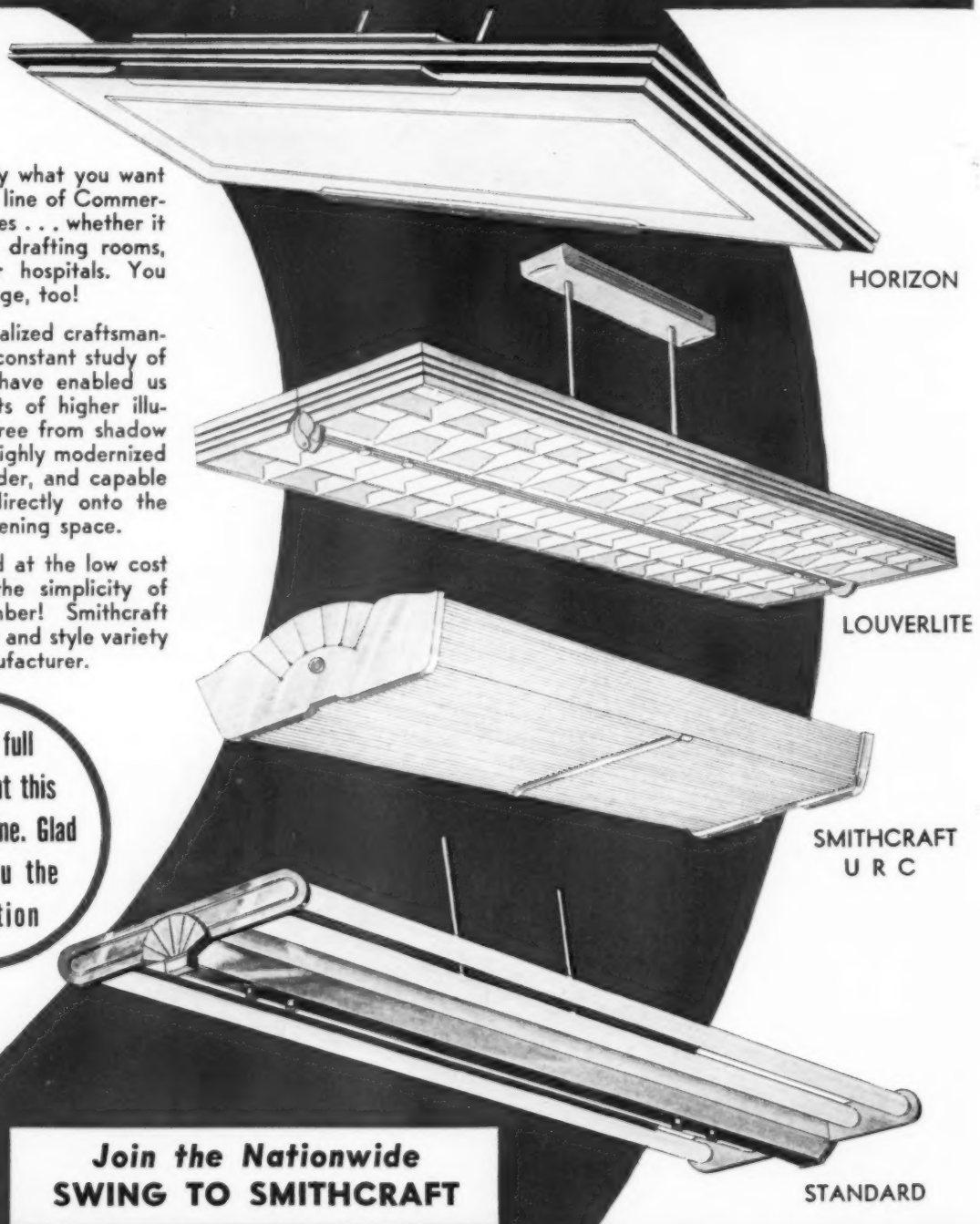

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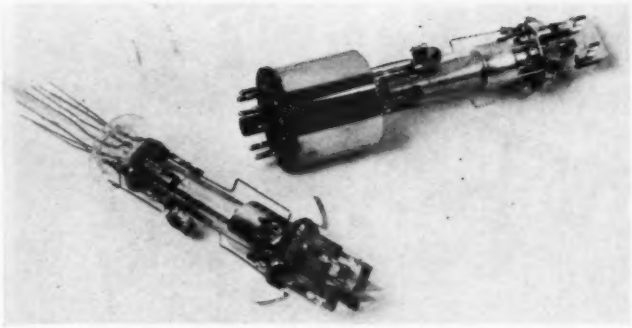
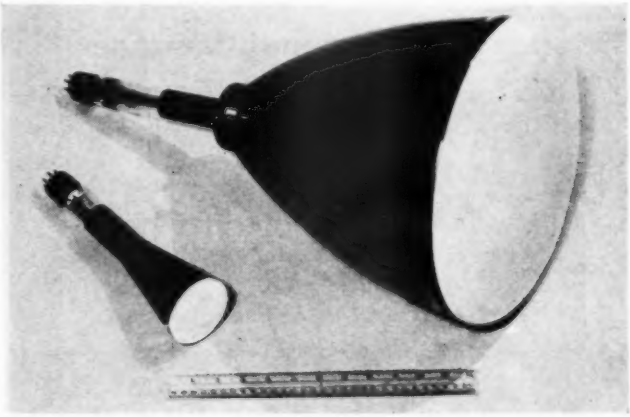


Two views of identical mount assemblies used in cathode-ray tubes. In the bottom assembly the cathode is located at the center of the disc nearest the base. The cylinder extending between the cathodes and the plates at the right end is the electron gun, at the end of which can be seen a tiny hole through which a beam of electrons is shot. The two sets of plates at right angles to each other are used to deflect the electron beam from left to right or from top to bottom. The top assembly shows the number of base pins employed.

is obtained by means of a tube in which the oscillations can be controlled and held at a stable value. In other words the left and right plates are subjected to controlled oscillations so that the beam will sweep across from left to right, jump back and then retrace the same path again when synchronized with the vertical deflection of the beam. Each sweep takes place in the fraction of a second so that the pattern on the end of the cathode ray tube appears as a steady wave line.

While this explanation of cathode-ray oscilloscope operation is considerably simplified and would be subject to much further treatment before a complete picture of the instrument's functions could be obtained, it may serve to provide a basic understanding of how a large amount of the study of electric current phenomena is carried on.



Two sizes of cathode-ray tubes available commercially. The small one at the left is used in cathode-ray oscilloscopes, whereas the larger one, with a 12-inch fluorescent screen, is used in television receivers.

Iconoscopes and Image Dissector Tubes

An indication of the method by which visual images are converted into electrical impulses for television transmission was given in Chapter 11. The iconoscope, one type of tube which makes this conversion, is an extremely complicated electron tube involving not only precise control of electron movement in a thin beam, but also a photosensitive screen or plate three or four inches square called a *mosaic,* as well as several other elements.

The surface of the mosaic is made up of millions of tiny photoemissive units each of which is insulated from the other so that each can acquire a charge independently of its neighbor. Each minute unit consists of a silver globule treated with caesium. When a scene or optical image is focused upon this mosaic surface, each of the tiny units emits electrons in accordance with the intensity of light striking it. Obviously, a focused image will vary appreciably in its pattern of light so that there will be a wide range in the emission from different units.

Since electrons are emitted, the units are left positively charged, and the screen becomes a pattern of positively charged units conforming to the optical image focused upon it.

In order to convert this electrical charge picture into pulses which can be transmitted via electromagnetic waves, an electron beam completely sweeps the plate in successive lines, and in so doing effects certain changes in the charge of each unit in the mosaic. These charge changes are then converted into signal pulses and broadcast so that the complete picture is almost instantly reduced to electromagnetic oscillations, and at the receiving end just as rapidly traced back into the picture again on the fluorescent screen of a cathode ray tube.

The image dissector tube functions quite differently in that the focused image is not broken up on the plate into tiny units as with the iconoscope. In this case the image is emitted intact from a photoemissive plate and scanned by a stationary opening in the end of an electrode within the tube. The scanning is accomplished by movement of the image under the influence of deflection elements, rather than by a moving electron beam,

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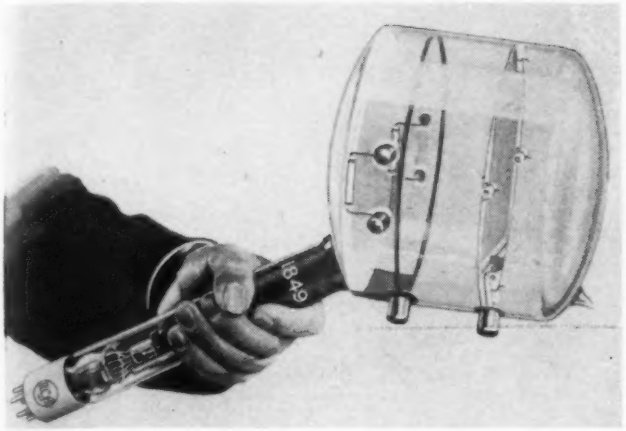


Above, commercially available iconoscope. The scene to be televised passes through the flat glass window (after passing through lenses to bring it down to proper size) and falls on the mosaic plate shown within the tube. The signal which results passes from the top by means of the two terminals shown at the bottom.

so that electrons, of which the emitted image is constituted, enter the opening as the image passes.

To make a rather crude analogy, the image might be compared to a layer of sand of varying thickness spread out upon a large flat board, and the opening similar to the hose of a vacuum cleaner. By moving the board successively back and forth under the hose opening, the sand would be drawn up as it passed the opening, the amount of sand entering at any one moment depending upon its thickness on the board at that point.

In a like manner the variations in brilliancy of the electron image become pulses of current entering the opening, and, in turn, are broadcast as video signals.

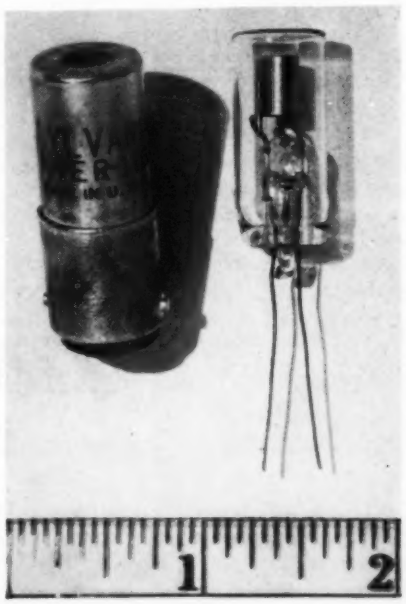
Facsimile Recorder Tube

This particular type of tube has become very widely used as a result of the war. It is the heart of a relatively new method of receiving photographs transmitted by radio. The photograph is taken by any camera in the usual way and a print (about 8x10) made. This print is placed on a cylinder, much like an Ediphone record, and revolved at a moderate rate of speed. A needle-like beam of light is focused on the picture as it revolves. The tiny shaft of light acts about as the needle of an Ediphone record would, that is, it travels laterally along the cylindrical photo as it revolves until the whole picture has been covered. This pin point of light is reflected from the picture back to a photo-electric tube. It is obvious that the amount of light reflected is dependent upon the variations of black, white or grey on the photograph. Thus, the photo-electric tube generates its current in accordance with the variations of light striking it. This current passes into a radio transmitter and is broadcast; the photo-electric tube taking the place of a microphone.

On the receiving end, possibly thousands of miles away, it is possible to actually "hear" the picture with earphones as it comes in. It sounds like a fluttering high pitched note, varying in intensity but not in tone.

The next problem is to get the tone back into the form of a picture, and it is in this capacity that the Recorder Tube functions. Instead of earphones or a loud speaker, the signal, after being amplified, goes to the Recorder Tube. The Tube is sensitive to very slight variations in the energy from the signal and its light output responds instantly in accordance with these variations. The Tube is opaque except for the end where a thin beam of high intensity light is emitted. This beam of light, which is fluctuating with the radio signal, is high in actinic (photographic) value and is narrowed down to another needle-like shaft by lenses. This pin point of light is focused upon a cylinder like the transmitter uses, except that blank sensitized paper is used. As the cylinder revolves the recorder tube faithfully records the photograph as it is being broadcast.

Either negatives or positive prints can be sent or received in this way. The potentialities of this method of radioing pictures can be imagined. Not



An electronic voltage regulator which is used in conjunction with facsimile recording equipment.

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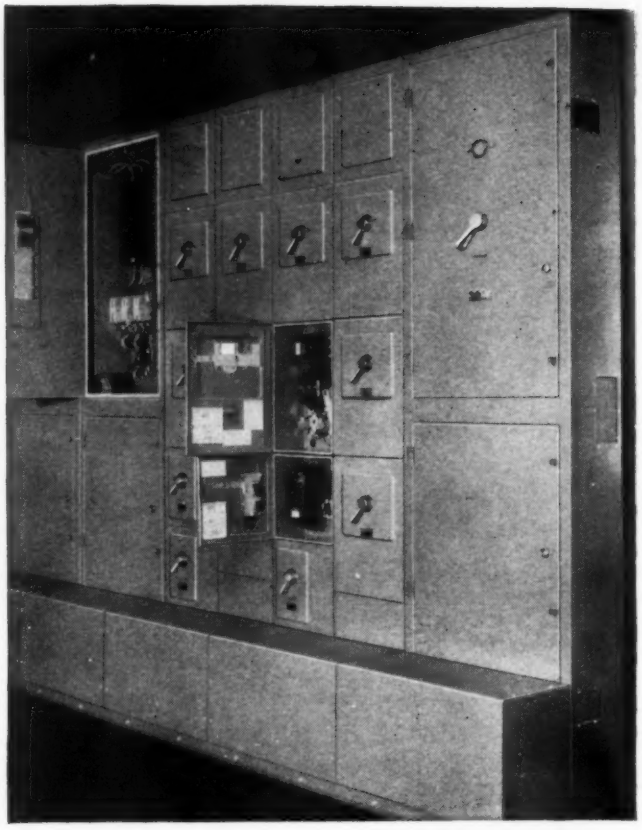

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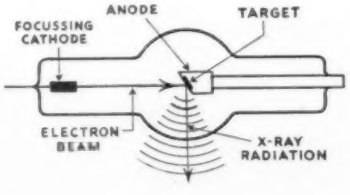
A facsimile recorder tube showing the small opening in the top element through which a small beam of light passes. The intensity of this beam varies with the pulsations of the facsimile received by the tube.

only are we able to read about what happened a few hours before, thousands of miles away, but we see pictures of it as well.

Thus, in a facsimile recorder tube we have in effect a slow type of television since the picture is broken up into lines, scanned, and reproduced in a manner similar to the operation of a cathode ray tube.

A tiny electronic tube is used for regulating the voltage in the facsimile recorder. It is essential in this apparatus, that the voltage from the amplifier must not fluctuate. If it does, the picture being transmitted or received by radio will be decidedly inaccurate as far as its density is concerned since a needle-like beam fluctuates as the picture reflects it at the transmitting end and does the recording in the same way on the receiving end, so that fluctuations of light due to unstable voltage cannot be tolerated.

The operating characteristics of this little tube are such that the voltage drop across it remains substantially constant, even though the supply voltage varies, because the drop is independent of the current passing through the tube. A metal can is placed over the top which not only provides protection but serves also as a shield to keep stray electric fields that may be encountered from effecting the actual operation of the tube.



Simplified diagram of the fundamental operating elements of an X-ray tube.

X-Ray Tubes

As explained in Chapter 10, x-rays are electromagnetic waves having wavelengths from a small fraction of an Angstrom to six or eight hundred Angstroms. They are generated when electrons traveling at high speeds through a vacuum tube collide with the solid metallic anode called the *target*.

In an x-ray tube the electrons are emitted from a hot cathode as in many other types of electron tubes. They are given their high velocity by the application of high potential (voltage) between the cathode and the anode. The higher the potential applied, the greater becomes the speed of the electrons, the shorter become the wavelengths of energy radiating from the tube, and the greater their penetrating power.

While an x-ray tube is far from a simple device, its fundamental operation is not as complicated as others we have discussed, and an understanding of it is not difficult. In the massive million volt (and larger) tubes used for industrial metal analysis as well as the treatment of malignant diseases, a problem of heat control and safety is presented. In such cases, water cooling and oil immersion is sometimes used to overcome the difficulties.

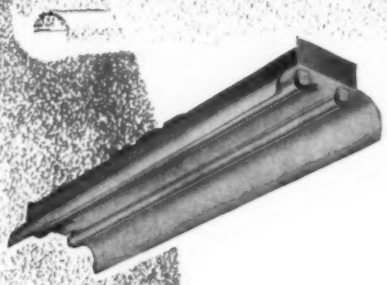
Electron Microscope

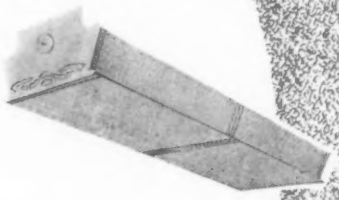
The electron microscope will probably become one of the most important contributions the Science of Electronics has made to human welfare. With it, we may be able to study mysteries of fundamental matter so small that the optical or light microscope fails to reveal them by a wide margin.

Visible light, as has been explained in detail, travels in waves of definite length. The waves of deep yellow light, for example, may be 6000 Angstroms or a little more than a forty thousandth of an inch from "crest" to "crest." When objects or particles become small enough to have dimensions approaching the actual lengths of the waves of light, we reach the limit of light's ability to reveal them.

Electrons, on the other hand, together with a nucleus, make up the structure of an atom. Since atoms themselves are something less than a hundred millionth of an inch in diameter, some idea can be obtained of the size of an electron although their solid form, if any, is not established with any degree of certainty.

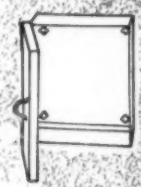
There is a similarity in the behavior of electrons and the behavior of light. The latter is re-





In Wartime as in Peacetime

The **SPERO** Plant stands behind the Electrical Wholesaler

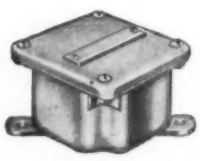


WE'RE *"conscientious objectors"* to the wartime policy of selling direct to the jobber's customers. Jobbers must eat in wartime, too—and it is our sincere belief that if we, as manufacturers, count them out of our distribution picture now, we do not deserve their business after the war.

In spite of material shortages, manpower losses and government limitations we have continued to make and supply to wholesalers as near complete a line of our products as possible. We have done our utmost to fill orders—taking care of new customers as well as old. There will be no reconversion delay, for the Spero line in wartime consists of the same items as used in peacetime.

We are doing our part on war contracts, too. At the Navy's request we turned a large part of our facilities over to the manufacture of 9-S watertight steel enclosures and devices for our fighting ships and merchant marine. Faced with an order to sell these products direct to the consumer, we again went to bat for the electrical wholesaler, calling attention to the important part he is playing in expediting our shipbuilding program. We believe that our efforts were instrumental in having this order rescinded.

Today we are still making our five regular lines of products: fluorescent fixtures, reflectors, electrical construction materials, floodlights and vapor-proof units —in addition to 9-S equipment, and we are still adhering, as we always will, to our policy of *distribution only through legitimate electrical wholesalers.*



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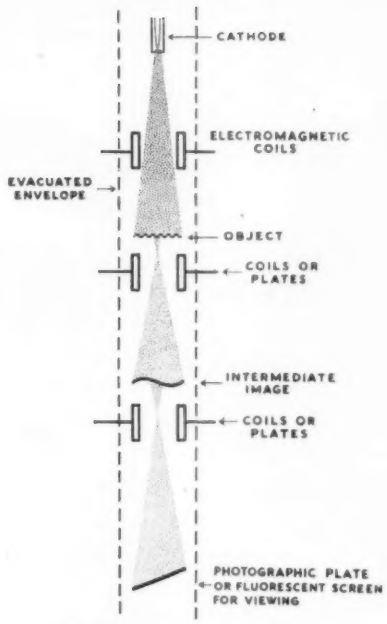

PRINCIPLE OF ELECTRON MICROSCOPE OPERATION

fracted when it passes through transparent media such as water, air or glass, and the optical microscope is a precise means of controlling this characteristic with glass lenses. Electron behavior, however, is controlled by means of electrostatic or electromagnetic fields (as explained in the discussion of cathode ray tubes) so that a beam consisting of countless billions of electrons can be deflected in a manner comparable to the refraction of light. The electron microscope is based upon this phenomena.

A beam of electrons is provided thermionically. This beam corresponds to the light beam of an optical microscope, but instead of glass lenses for refraction, electric or magnetic fields between plates are used to deflect the electron beam as desired. Thus, a particle to be observed is placed in the path of an electron beam prior to deflection. Electrons will pass through it in accordance with the thickness of the particle at the point of penetration, so that that portion of the beam which has done the penetrating becomes an electronic "likeness" of the particle. By diverging the beam with the deflecting plates, the "likeness" can be enlarged and directed so that the image will be reproduced on either a fluorescent screen or a photographic plate.

The resolving power of an electron microscope may be as much as a hundred times greater than that of a good optical microscope, which would mean nearly 200,000 diameters, instead of the optical instrument's 1500 or 2000, and greater powers are probable in the near future. The highest resolving powers of the electron microscope are the result of electron velocities which are higher than at low resolving powers.

The electron microscope is being used in the study of many industrial materials, as well as in bacteriology and medicine. Its development and use will most certainly unfold a great many things to aid medical science in its battle against disease, and physical science in its efforts toward greater comfort and happiness for mankind.

Electron Tubes in General

Since there are many hundreds of types of electron tubes manufactured today, no attempt could be made in this or any other book to adequately cover all of them. Electron tubes are used to varying extents in practically every branch of industry and commerce in one way or another. There are so many applications, in fact, that it has been difficult to choose, for Part IV, those which seemed the most important.

Motor control accomplished through the use of electron tubes, electronic induction heating, the control of resistance welding with thyratrons and ignitrons, rectification, and several other major industrial applications of electronics have been passed over without explanation not because they lacked importance but because they seemed to lack a certain *fundamental* element that it has been the purpose of this "primer" to present. Basically, electron tubes are devices to produce and control a flow of electrons and nothing else. If an application seemed to be intimately associated with this function, we have discussed it. Where their use has appeared to be more remote from the basic function, even though highly important from the standpoint of industrial efficiency, we have left the discussion to others.

It is hoped that the reader, having read through this book, will be urged by his own interest to peruse other less general and more detailed textbooks on radio, medicine, illumination or whatever other specific branch of electronics appeals most strongly to him.

At least, the reader should be better able to discuss electronics at the next meeting than he was when he read the first two paragraphs of Chapter I.

THE END

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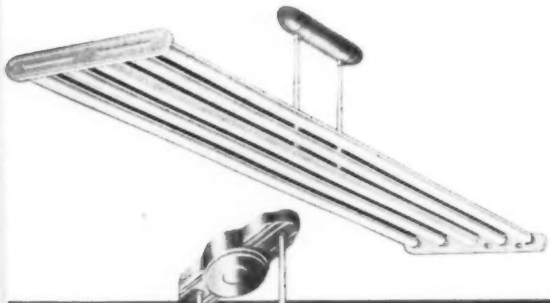
GL-240:
Two light 40 watt, glass enclosed, louvred unit, unusually efficient, designed for pendant or ceiling suspension mounting, constructed for individual or continuous run installation.



VO-440:
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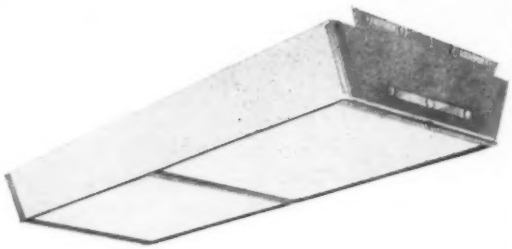

LR-440:
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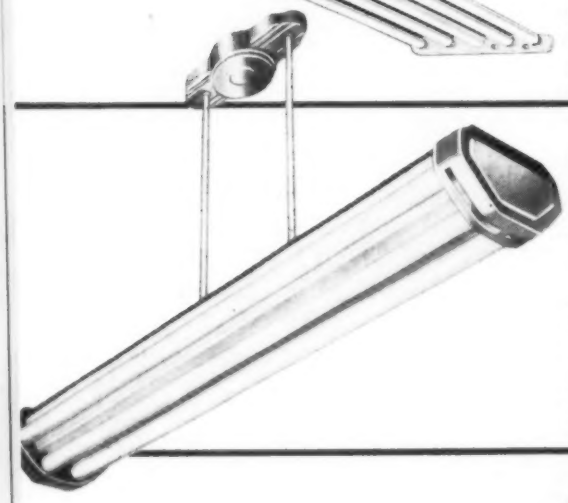

L-440:
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VL-440:
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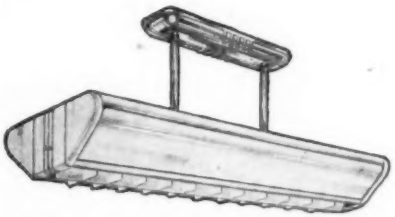
FLUORESCENT FIXTURE



The "Crusader" is an enclosed unit available for direct ceiling or suspension mounting. Chassis of this unit is of steel, finished in baked white enamel. Body frame and ends are of wood, finished in ivory enamel with a gray trim. Side panels are of die-formed, stay-put plastic. The entire body is held in place by spring clips and is easily installed or removed. DayBrite Lighting, Inc., St. Louis, Mo.

When writing mention WHOLESALER'S SALESMAN

CABLE

Flexible loom bus-drop cable carries power from bus bar to individual motor driven machines in war production plants. May be used in new or conversion wiring or as a maintenance item. Cable consists of three stranded conductors, rubber insulated and braided, and a bare stranded ground wire. Conductors are cabled with saturated jute fillers and presaturated paper and tape. General Electric Co., Bridgeport, Conn.

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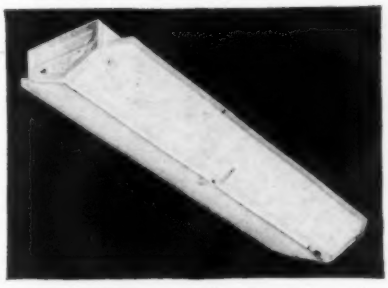
FLUORESCENT FIXTURE



Aristolite fluorescent lighting fixture, for use in offices, drafting-rooms, etc., is available in sizes for 2-40, 3-40 and 4-40 watt lamps. This fixture has a steel housing that totally encloses all accessories and wiring. Its end-design permits flush-abuttment of units when continuous installations are desired. The Edwin F. Guth Co., St. Louis, Mo.

When writing mention WHOLESALER'S SALESMAN

Post-War Planning?

Of course we're laying plans for the period after the war—but what is really important to the Electrical Wholesaler is the policy behind the planning.

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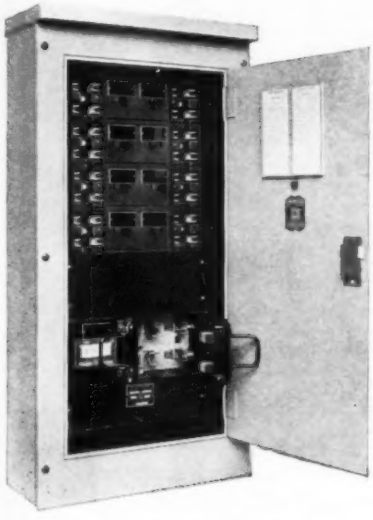
GARFIELD, NEW JERSEY

BLOWERS

No. 68 utility blowers, developed for solving problems of machine designers, are powered by a series wound, 110 volt, single phase, 60 cycle, sleeve bearing type a.c. motor. Housing and stand are made of die-stamped steel. Wheel and motor are direct-connected. Ilg Electric Ventilating Co., Chicago 41, Ill.

When writing mention WHOLESALER'S SALESMAN

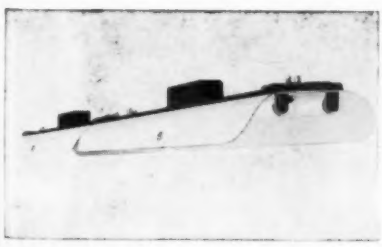
PANELS



Combination power and lighting panels, for marine use, are claimed to meet either low or high shock specifications of the U. S. Navy. They have eight 2-pole 30 ampere lighting circuits and two 2-pole 60 ampere power circuits. Square D Company, Detroit, Mich.

When writing mention WHOLESALER'S SALESMAN

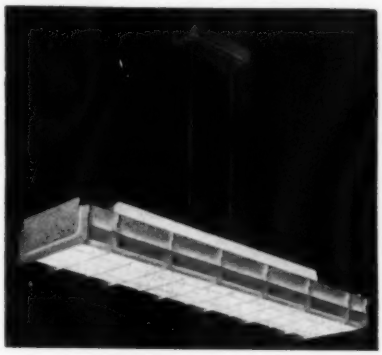
LUMINAIRE



Fluorescent luminaire with one-piece, double-length hood and two full-size reflectors is available for use with four or six 40-watt or four 100-watt Mazda F lamps. Hood is fabricated from sheet steel with all ballasts, lamp holders, and starter sockets mounted and wired as part of the channel assembly. Sliding hangers permit suspension from any part of the hood. Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

When writing mention WHOLESALER'S SALESMAN

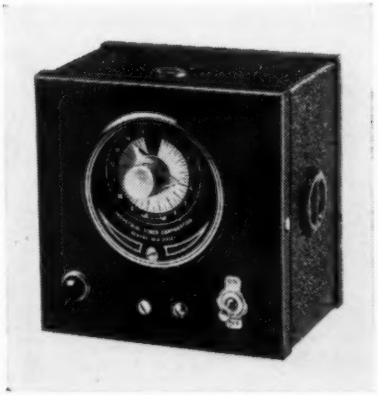
LUMINAIRE



The "Warrior" luminaire for four 40-watt fluorescent lamps is designed for use in general offices and drafting rooms. It is wired with 110-120 volt, 60 cycle, high power factor, tulamp ballasts, lampholders, starter sockets and FS-4 starters. Available either for ceiling mounting or as pendants. Curtis Lighting, Inc., Chicago 38, Ill.

When writing mention WHOLESALER'S SALESMAN

TIMER



Series S signalling timer is designed to command visual and audible attention the instant a time interval is completed. Operates on alternating current, 115 to 230 volts; 25, 50 or 60 cycles. Motor is slow speed, self-starting synchronous type. Industrial Timer Corp., Newark, N. J.

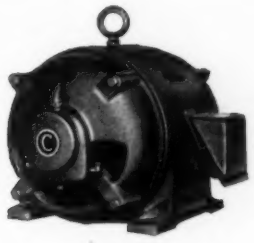
When writing mention WHOLESALER'S SALESMAN

BALLASTS

Ballasts, which incorporate a transformer, two reactors and a capacitor, lights two 40-watt tubes with a power consumption of 105 watts, operates from the ordinary 115 volt alternating current lighting system.. It is suitable for use in all types of lighting—industrial, commercial and residential. Jefferson Electric Co., Bellwood, Ill.

When writing mention WHOLESALER'S SALESMAN

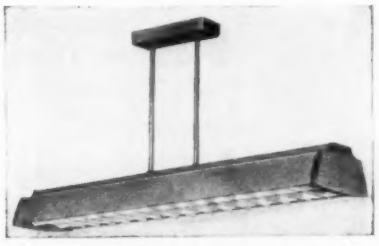
MOTORS



Form J splash proof motors in sizes 1½ to 15 Horse Power are available with two-way ventilation. Cooling air, drawn in through baffeled openings in the bottom of the end brackets by a fan on each end of the rotor, is blown through and around all parts of the motor and out through louvered openings in the side of the frame below the center line and at the bottom. Century Electric Co., St. Louis 3, Mo.

When writing mention WHOLESALER'S SALESMAN

FLUORESCENT UNIT



The Grenadier, for office and drafting rooms, is available either for ceiling or suspension mounting, is equipped with etched ribbed glass. Wooden louvers are provided to permit a high component of downward light and at the same time to shield the lamps, prevent glare. The F. W. Wakefield Brass Co., Vermilion, Ohio.

When writing mention WHOLESALER'S SALESMAN

Are you properly emphasizing the SAVINGS FEATURE OF YOUR PLANT'S PAYROLL SAVINGS PLAN?

WITH the war swinging into its tensest phase, now's the time to emphasize over and over again the *savings* feature of your Payroll Savings Plan. To press home to all your people the need of building up their savings—the need of building up their savings not only in wartime but also in the years directly after the war. To point out that a bond cashed before its full maturity is a bond killed before it has given its fullest service to its owner—*or to his country!*

Buying War Bonds, holding War Bonds, and keeping wartime savings mounting—all are absolutely vital. But no one of these is enough by itself. The *savings habit* must be carried over into the years of reconstruction which will follow the war. For if, at war's end, we have 'flash-in-the-pan' spending, *everybody loses.* The spender loses, you lose, and the country loses! While a working public, convinced of the value of continued, planned saving, is the soundest possible foundation for private enterprise of every sort.

We call these bonds War Bonds—and with their aid we will win this war at the earliest possible moment! But they're Peace Bonds, too—and, rightly used, they will win for their holders, *and for all of us,* a happy and prosperous place in the years of peace to come.

WAR BONDS to Have and to Hold.

The Treasury Department acknowledges with appreciation the publication of this message by

WHOLESALER'S SALESMAN

★ Let's All Back
★ the Attack...
★ with War Bonds!

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council

(*Continued from page 63*)
tribution of industry, Mr. Swope said that no similar public recognition has been given to the great contribution of the organizations supplying electricity to industry and the public.

This achievement has been so nationwide that no effort has been made this year to single out any particular organization for the Charles A. Coffin Foundation citation, as has been done in past years, according to Mr. Swope. Instead, the blanket citation was elected by the Foundation's Board of Trustees in appreciation of the entire industry's outstanding achievement.

Graybar Electric's Diamond Jubilee Marked by Postwar Plans

Quiet war-time celebration brings out romantic background of invention, manufacture and distribution dating back to Civil War period

BEYOND a lone advertisement appearing in various trade journals, Graybar's Diamond Jubilee will pass unheralded and without further celebration activities. For Graybar, like the rest of the Nation's wholesalers, is hard at the job of supplying the war needs of a mighty Armed Force and its partner, War Industry.

Born in the shadow of the Civil War, in 1869, Graybar owes its start to two men, named Elisha Gray and Enos Barton. An inventive-minded professor and a telegrapher respectively, these two formed the first partnership that was to grow in time to be one of the World's largest manufacturers and later one of the leading electrical wholesalers. Located in a small shop in Cleveland, the original business of the infant concern was the design and manufacture of telegraph instruments and later, bells, buzzers and various alarm devices. Moving to larger quarters in Chicago, the firm's next product expansion were hotel annunciators and subsequently, the business became one of not only manufacturing, but the sales of wet batteries, switches and push buttons, needed to operate these devices.

This development, as purchaser and seller of other manufacturer's items, was a logical one, particularly in view of the invention of Alexander Graham Bell's telephone in 1875 and Thomas Edison's incandescent lamp in 1879. These two electrical discoveries, marking the beginning of the tremendous electrical era that was soon to follow, brought the inevitable expansion in manufacture and usage of wire, cable, dynamos and generators, and, consequently, Gray and Barton were called upon more and more to perform the distributing function for all electrical equipment.

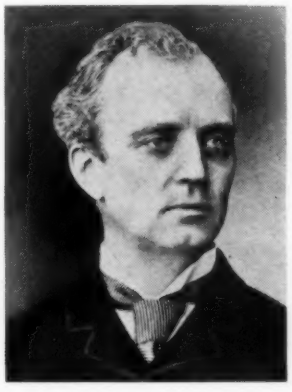
Previously and following a merging of four small electrical shops in 1872, the firm had been christened the Western Electric Manufacturing Company. Nine years later, in 1881, this company entered into a contract with the American Bell Telephone Company for the manufacture of telephones (receivers, transmitters and induction coils) under Bell patents and as the Western Electric Company (the Manufacturing was dropped from the title at this point) grew at a rapid pace with the mushrooming telephone industry.

By 1904, nine warehouses across the country formed the distribution system of the Company, which served its manufacturing facilities of telephones, arc lights, telegraph instruments and a complete assortment of lighting equipment and power apparatus.

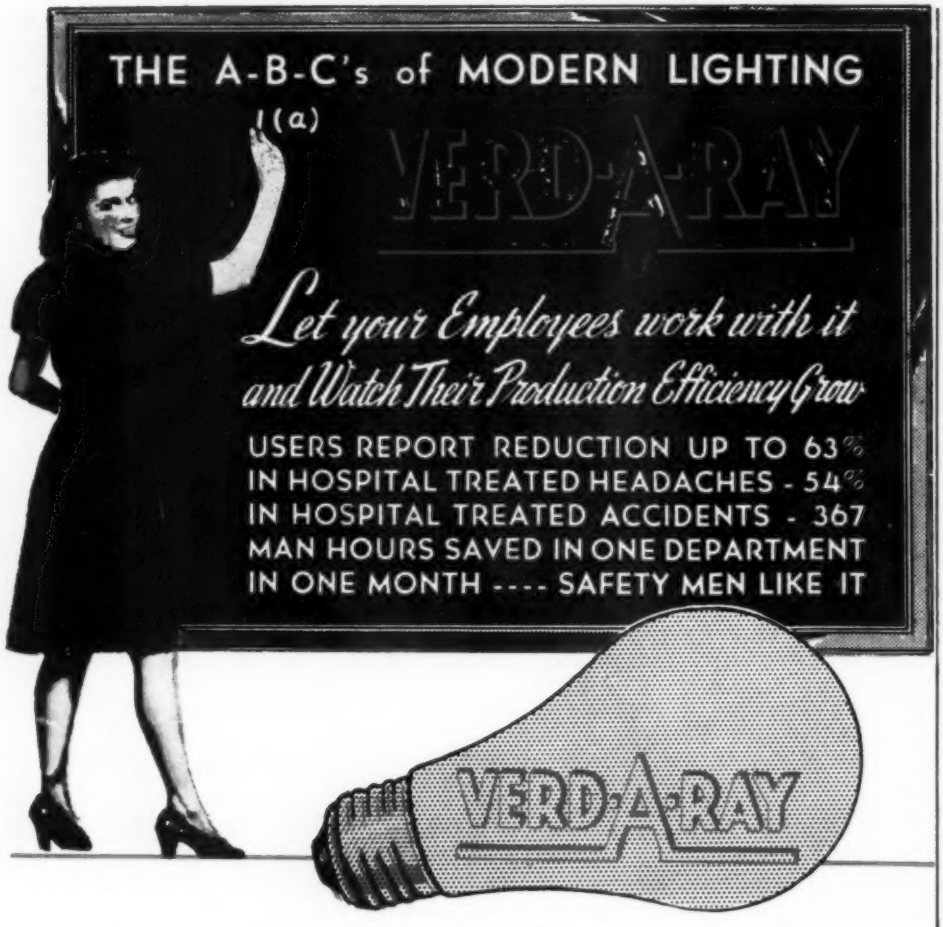
This growth finally reached such proportions that it became necessary, in 1921, to separate the Company into two distinct organizations,—namely, the Western Electric Telephone Department and the Western Electric Supply Department. Each, later had its own management and was directed and operated by its own personnel, but gradually it became evident that much confusion and misunderstanding resulted from the similar titles.

So, in 1925, it was decided to set up the Supply Department as a completely separate Company, bearing a completely different name. Accordingly, after much thought and testing of names that would retain the good-will built up over a long period of years, the management settled on a derivation of the founders names Gray and Barton and eventually, in 1926, Graybar came into being.

The name Graybar was scarcely three years old when it again became news to those both within and without the trade. At this time it was announced that the Graybar employees were going to buy all the common stock in the Company. This occasion was the first time in history that a company, the size of Graybar, offered to



Men who were pioneering in the electrical industry three-quarters of a century ago—a group of employees of the Gray and Barton Company a few years after the close of the war between the states. Professor Elisha Gray is seated in the front row holding his automatic telegraph printer, one of his many inventions. Center photo is that of Enos Barton who with Elisha Gray, right, started the manufacturing and distribution business that later became the Western Electric Company and the Graybar Electric Company. Barton was originally a telegrapher, Gray an inventive-minded professor.


THE A-B-C's of MODERN LIGHTING
1(a)
VERD-A-RAY
Let your Employees work with it
and Watch Their Production Efficiency Grow
USERS REPORT REDUCTION UP TO 63%
IN HOSPITAL TREATED HEADACHES - 54%
IN HOSPITAL TREATED ACCIDENTS - 367
MAN HOURS SAVED IN ONE DEPARTMENT
IN ONE MONTH ---- SAFETY MEN LIKE IT
VERD-A-RAY

Fine physiological research data conclusively proves features claimed for this new light bulb ¶Acceptance in war plants for inspection lines where buyers test and prove before buying is further proof of efficiency ¶Turnover by retail chains in all fields proves consumer demand and acceptance ¶This is a modern post war lighting improvement available NOW.

TRY IT

ON YOUR INSPECTION LINES

OR WHERE COMPLAINTS OF HEADACHE OR

POOR VISION INTERFERES WITH PRODUCTION

PRICE INFORMATION NOW IN "SWEETS"
SAMPLE AND TECHNICAL DATA ON REQUEST

WRITE TODAY TO SAVE ELECTRIC CORPORATION - TOLEDO 5 - OHIO

(Advertisement)

Distributors Invited to Discuss Sales

WHOLESALERS attending the N. E. W. A. Meeting at the Stevens will find it profitable to visit the suite of M. J. Grosse, Sales Manager for the manufacturers of Verd-A-Ray lamps.

Nationally advertised in consumer papers and all essential trade papers, this new incandescent lamp is ready for expanded merchandising. Up to this time quality distribution in a limited number of cities was sought for the purpose of developing a proved sales pattern.

Despite lack of appropriate distributor tie-up Verd-A-Ray is now quite generally accepted by consumer and industry alike. In fact a list of plants now using Verd-A-Ray, who have "tested and proved" before buying, would read like "who's who" in war materiel production.

More than fifty leading industrials recently expressed their willingness to cooperate with scientists of the medical school of a leading university who for a year have been conducting research along physiological lines. In expressing willingness to supply information on the practical aspects of Verd-A-Ray, nearly all voiced praise for the product. Medical journals have accepted for early publication scientific papers proving glare reduction, relief from eyestrain and improved visual acuity where this lamp is used in place of ordinary lamps.

Several of the leading distributors of competitive brands now sell Verd-A-Ray. Some carry it because their customers demand it. Nearly all find it a profitable line through fast turnover. One of these distributors (skeptical at first) during 1943 sold more than one half million dollar list value.

From the foregoing it can be seen that a visit with Mr. Grosse, at the Stevens, will be worthwhile for many wholesalers. All are invited to make appointments as soon as possible.—*Advertisement*

sell its stock to the people who worked for it and, not long thereafter, the entire issue of common stock had been subscribed for by Graybar employees. Graybar is now totally owned and operated by its active employees and pensioners.

While necessarily briefly told, the foregoing "high-lighted" history covers the events of three fascinating eras in the scientific and business development of this country; the Age of Invention, the Age of Production and the Age of Distribution. While the former two may have reached a certain climax, the latter, Distribution, has only recently begun to function to its full economic capacity.

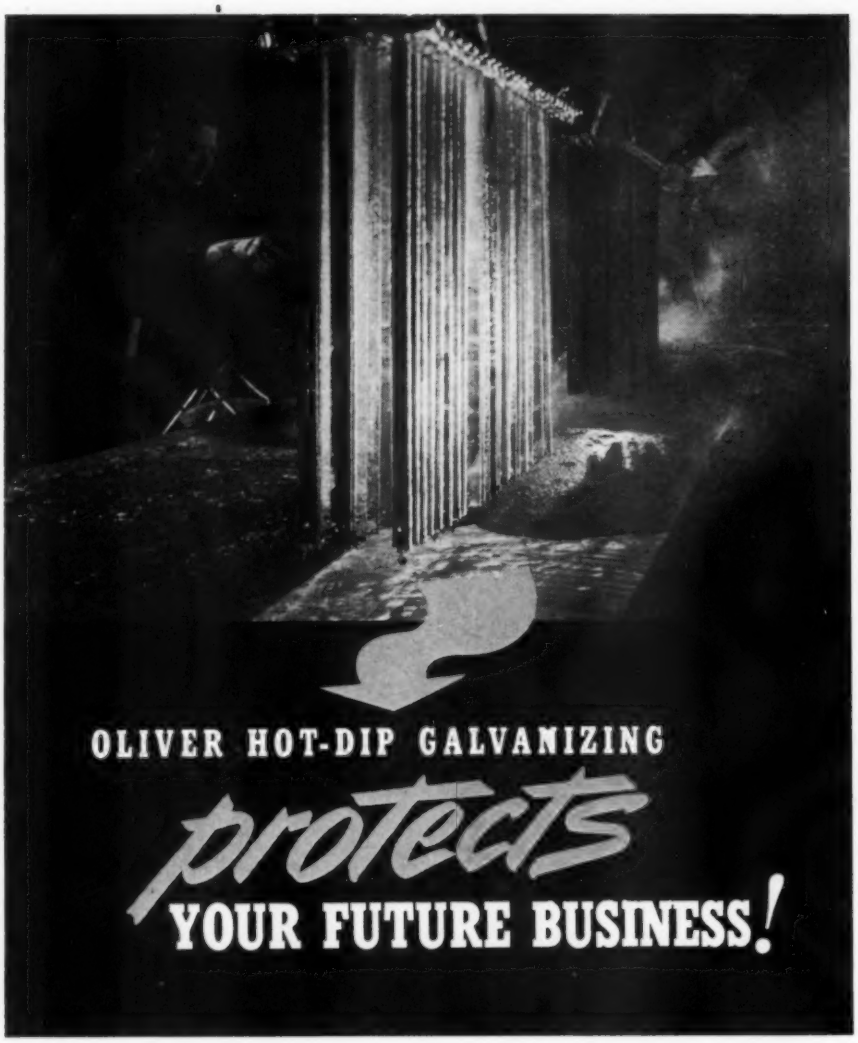
Current president of Graybar, A. H. Nicoll, controls accelerated war-time activities of 75 year old distributing concern

Graybar, with its fine leadership, personnel and objectives, continues with other wholesalers, to perform that vital link in the security, welfare and happiness of mankind; more goods,—to more people, at lower cost.

How does Graybar feel about it?—Let's quote from their recent Anniversary ad:—"We're chiefly glad to be 75 because the amassed experience of those years—the long slow process of *learning the ropes*—is helping us meet each new and critical problem of electrical supply and distribution better than we would hope to do as a youngster at the game. And we can't imagine a better use to make of it."

"Beyond that, we think the perspective of many years of peace-time electrical progress,—antedating even lamps and motors—will help us to serve better in the 'conversion' and post-war years."

ROYAL... a good
name to "go buy"
WIRE • PLUG FUSES • CARTRIDGE FUSES
CORD ASSEMBLIES • CHRISTMAS OUTFITS
ROYAL
ELECTRIC COMPANY, INC.
95 GRAND AVENUE · PAWTUCKET, R. I.



The glistening, corrosion-resisting galvanizing so carefully and skillfully applied to Oliver Pole Line Materials helps establish the customer good-will that protects your future business! Use Oliver Quality to increase your Pole Line Materials sales!

The Oliver Catalog has a wealth of useful sales data. Write for a copy today.

OLIVER IRON & STEEL CORP.

PITTSBURGH, PA., MAKERS OF POLE LINE HARDWARE SINCE 1894

Sylvania Appoints Wickstrum In West

The appointment of B. K. Wickstrum as Pacific Coast sales manager of Sylvania Electric Products, Inc., was announced last month along with notice of that company's expansion of sales and service facilities on the West Coast. Robert H. Bishop, general sales manager of Sylvania's lighting division also announced the appointment of two assistants for Mr. Wickstrum. They are C. W. Dickinson, who will be manager of the Northwest Division with headquarters in Seattle, and G. W. Field, manager of the California Division which includes Nevada, Utah and Arizona as well as California.

B. K. Wickstrum

Mr. Wickstrum, a native Westerner, has been advertising manager of the lighting division for the past four years. He is a graduate of Northwestern University, and before joining Sylvania he had four years of advertising and selling experience with the Hearst newspaper organization.

Mr. Field is an expert in application, service and maintenance of all products in the lighting division. He studied lighting and electrical engineering at Wesleyan University, and was formerly with Dealers Digest. Mr. Field and Mr. Wickstrum will be located at 555 South Flower St., Los Angeles.

Mr. Dickinson formerly represented Sylvania in New England.

Manwaring Appointed

A. H. Manwaring, formerly sales manager of Philadelphia Electrical and Manufacturing Co., Philadelphia, Pa., has been elected executive vice-president of that company.

Gets RCA License

The John Meck Industries, Plymouth, Ind., recently has been issued an RCA license to manufacture post-war radio receivers, according to an announcement from the company. Meck Industries reports that a firm of industrial design engineers has been working with Meck engineers for several months to prepare post-war radio models of a streamlined design to appeal to modern tastes.

House Organ A Morale Builder

The house organ, named the "Graybarometer," for the employees of the Graybar Electric Co., Los Angeles, has now been in existence for one year and is reported to be a builder of morale for the whole organization. It started out with two pages and has grown to five times that many. It is filled with local news and chatter with letters from the boys in service. The editor is W. A. McGuire and associate editor Annette Metkovitch. San Diego editors are Ling and Kelley, and the Phoenix, Arizona editor is Ellen Gonzalez.

"E" TO BRYANT Electric Company, Bridgeport, Conn., honors that company's Wiring Devices and Plastics Division for outstanding production of war materials. At presentation ceremonies were, front row, left to right: Capt. C. H. Bushell, U.S.N.; Sgt. Edward Flynn; Pharmacist Mate 1/c E. Bykowski; Anthony Dzurka, president of Local 209, U. E. R. & M.W.A. Back row, left to right; Col. A. H. Rogow, U.S.A.; G. H. Bucher, president of Bryant; H. E. Seim, vice-president and general manager.

QUAD

LIGHTING UNITS

ADJUSTABLE PORCELAIN ENAMELED FLOODLIGHT

No. 1184-M RLM THREADED DOME REFLECTOR

RLM

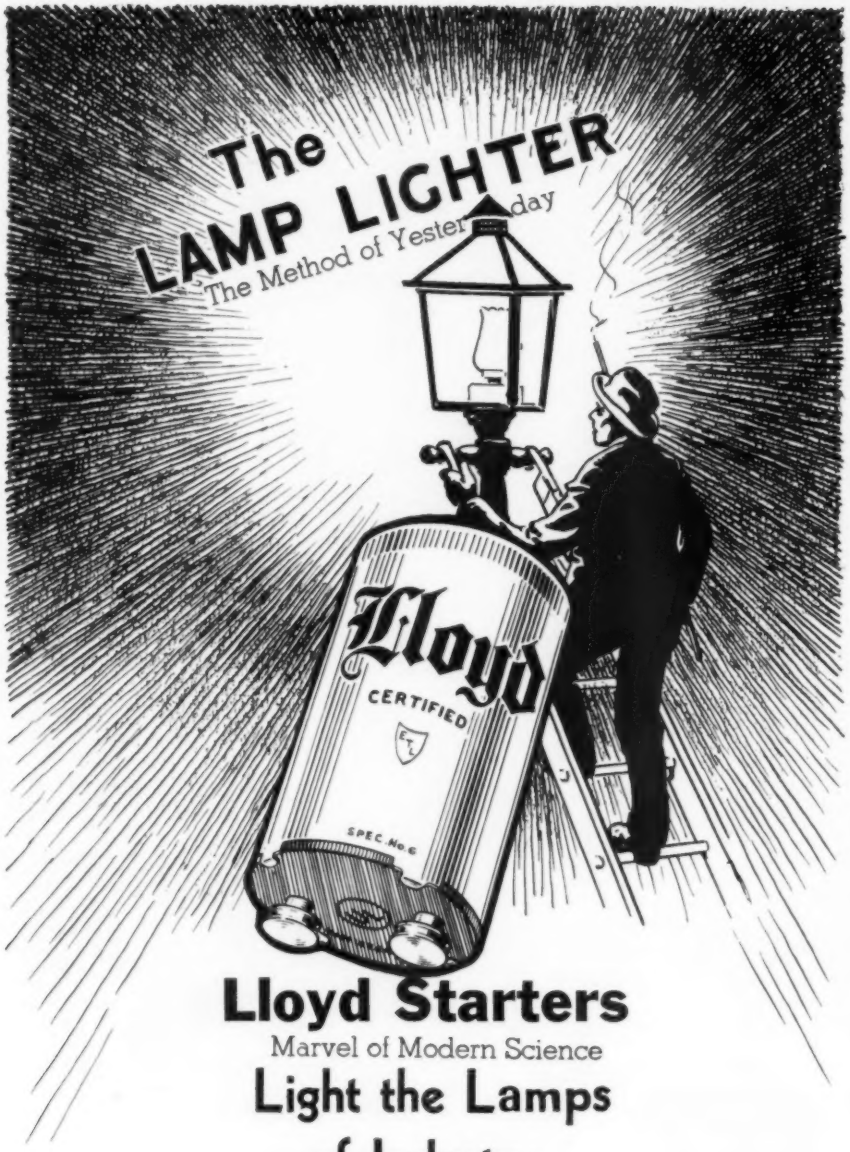
★ QUAD Lighting Units have unlimited possibilities . . . for good business and good lighting. The stress placed on specialized lighting today demands the most modern and most flexible lighting units—QUAD Units fill the bill for these requirements, no matter how exacting. Be ready for any industrial or commercial lighting job with QUAD Units.

QUAD—for today and for tomorrow—

QUADRANGLE MFG. COMPANY

Mfgrs. of Incandescent and Fluorescent Lighting Equipment

32 SO. PEORIA ST. CHICAGO, ILL.



Lloyd Starters

Marvel of Modern Science

Light the Lamps of Industry

Engineered for perfection in quick, sure starting of fluorescent lamps, Lloyd starters are lighting the lights for millions throughout the country.

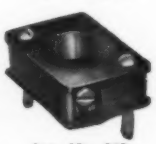
Their better performance is assured by specifications more rigid than accepted standards for material and design.

Tests conducted periodically by nationally known laboratories, confirm that the life and performance of Lloyd starters are far in excess of standard requirements.

Cat. No. 353
Lamp Holder and
Starter Socket

Lloyd Starters are listed and approved by Underwriters' Lab. Inc., and Canadian Eng. Standards. Assoc. Certified by Electrical Testing Lab.—Spec. 6. Certified to Fleur-O-Lier standards.

Remote
Starter Socket



Cat. No. 352
Patent Nos.
D133267-2280747

LLOYD POLICY INSURES QUALITY

LLOYD PRODUCTS COMPANY

Dept. WS-4 **Providence 5, R. I.**

Representatives in 23 Leading Cities

Export Office: 13 E. 40th St., New York, N. Y.

NEIL C. HURLEY, JR., newly elected president of Independent Pneumatic Tool Company. He has been with the firm for twelve years, serving as manager of the electric tool division, then successively as secretary, vice-president and executive vice-president. Neil C. Hurley, Sr., was elected chairman of the board of directors.

La Marque to Manage Graybar Radio Sales

J. W. La Marque, formerly manager of the radio broadcasting department of Graybar's Varick Street, New York District Office, has been appointed radio sales manager at the Graybar Executive Headquarters in New York City. He succeeds D. B. McKay, who has accepted a position as technical supervisor of radio properties for the Oklahoma Publishing Company, Oklahoma City.

Mr. La Marque has had more than 24 years experience in radio. He was with RCA and Haynes-Griffen in the early '20s and later was eastern sales manager for the Crosley Radio Corporation. He joined Graybar in 1928.

Commercial Control Changes Name

The corporate name of Commercial Control and Device, Inc., Brooklyn, N. Y., was changed to "The General Switch Corporation," effective on February 15, 1944, according to an

announcement from Morton S. Muller, president.

Mr. Muller states that the officers, personnel, products and services remain the same. The new corporate name identifies more readily the company's long-established trade-name "General" with the company, he said. General Switch Corporation will continue to make its line of enclosed safety switches, service entrance equipment and power distribution panelboards.

The officers of the company are: M. S. Muller, president; A. G. Muller, vice-president; W. H. Ross, secretary and treasurer.

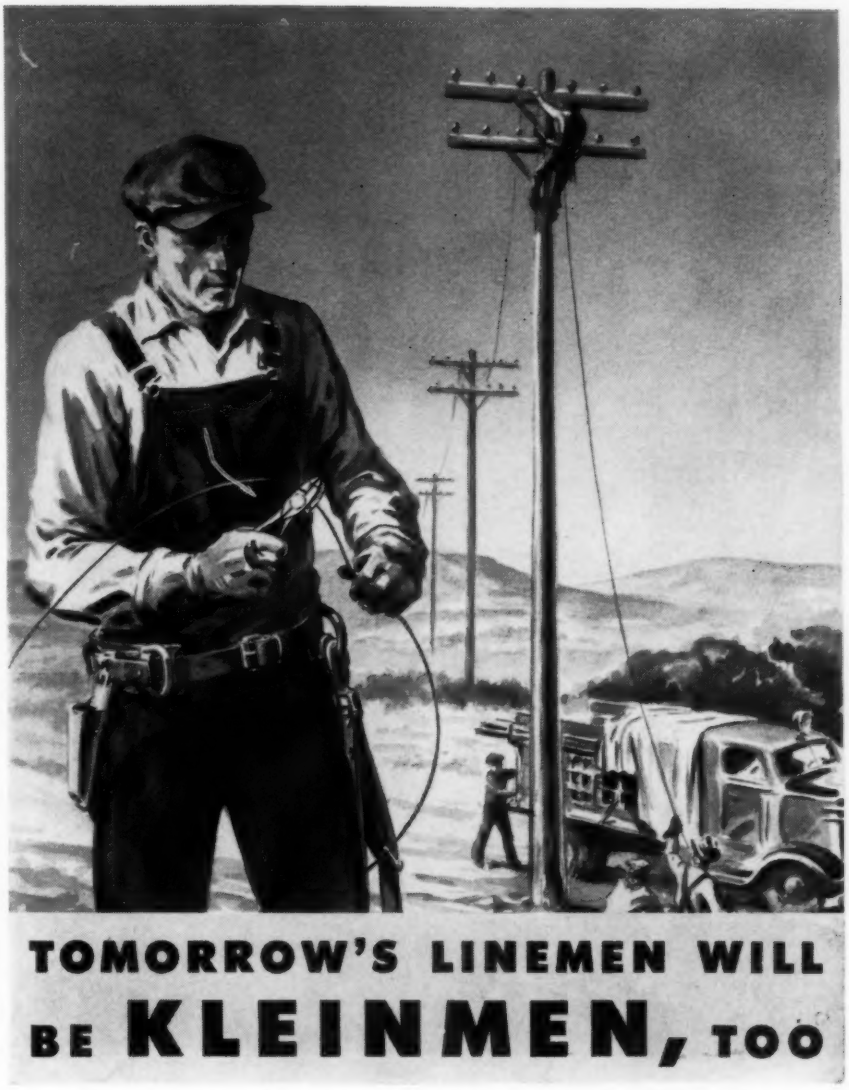
Paine Co. Appoints Joesam for N. Eng.

The appointment of E. M. Joesam and Co., 208–210 Purchase St., Boston, as New England distributor for The Paine Co., Chicago, has been announced. The Joesam company will carry a complete line of Paine Products.

Correction

In a news item in the March issue concerning the Triangle Conduit and Cable Co., Inc., New Brunswick, N. J., the address of the company was incorrectly given as Trenton, N. J.

J. S. JAMMER, whose appointment as general commercial director of Federal Telephone and Telegraph Corporation, was announced recently. He will be in charge of Federal's sales and advertising. Mr. Jammer has been engaged in sales activities for the parent company, I. T. & T., for the past 25 years.



TOMORROW'S LINEMEN WILL BE KLEINMEN, TOO

STRINGING wire is tough work. Men in the armed forces who have had to keep communication lines open under battle conditions know how good tools and equipment can aid them in their job. Today, Klein is producing this essential equipment for the Army and Navy and for war industries at home.

When the war is won and these Kleinmen return to their peacetime tasks, they are assured of the same high quality in their belts and straps—climbers and grips—pliers and wrenches that they knew before the war—the same high quality that is serving them today. They will recognize the name Klein as standing for the finest in tools and equipment.

ASK YOUR SUPPLIER

Foreign Distributor:

International Standard Electric Corp., New York

This book on the care and safe use of tools will be sent without charge on request.

Since 1857

Mathias KLEIN & Sons
Established 1857
Chicago, Ill., U.S.A.
3200 BELMONT AVENUE, CHICAGO 18, ILLINOIS

KLEIN TOOLS

LATROBE

FLOOR BOXES — WIRING SPECIALTIES

PRODUCTS

QUALITY THAT LASTS

When the installation or replacement job calls for speed as is always the case in war production plants the answer is Latrobe Products. Other reasons for Latrobe preference for all industrial, commercial and residential uses are dependable quality, high performance and lasting service.

NO. 280 NOZZLE

Shown here in No. 200 cover plate, 10 Amp. 250 volt Receptacle in Brass Housing, mounted on ½" brass pipe extension 3" long.

NO. 100 FLOOR BOX with No. 206 Nozzle

Fine parts, least amount of labor to install; greater wire space inside the box body.

"BULL DOG" INSULATOR SUPPORTS

Malleable iron of high tensile strength for fastening porcelain and glass insulators to exposed steel framework.

NO. 252 FLOOR BOX

Height to top of cover plate 3½ in. Box bodies 3" high. Can be quickly installed.

BX CABLE STAPLES

A small item with a big reputation. Packed in cartons, kegs and barrels.

Write for Catalog

BULL DOG PIPE OR CONDUIT HANGER

A sturdy sure-grip hanger of high quality that does a thorough job economically.

EASILY INSTALLED

FULLMAN MANUFACTURING CO.
LATROBE, PA.

ECONOMICAL

Mountain Group Considers Surpluses

The problem of disposing of the large stocks of surplus war goods now in the hands of the Government was an important subject of discussion at the mid-Winter Conference of the Rocky Mountain Electrical League at Denver recently. Because of the serious jeopardy facing manufacturers, wholesalers and dealers because of these stocks, the RMEL appointed a committee to study the situation and to report recommendations for the league's course of action to help control the situation.

It was brought out that these stocks of surplus goods are now in the hands of the Government, but that in many cases they were made available to civilians for speculative purposes. Sam G. Hardin, chairman of the RMEL's distributor division, declared that all branches of the electrical industry together with business generally, will suffer if distribution conditions stemming from release of new and used materials by federal agencies are not handled with due regard for the economic processes now prevailing in the nation. He predicted that calamity would ensue if some effective safeguard is not provided.

C. S. POWELL, who was elected a vice-president and director of the Graybar Electric Company, Inc., at a recent meeting of the board of directors. G. F. Hessler, a vice-president, was made a member of the executive committee and a voting trustee. All former officers and directors of the company were re-elected at the meeting.

CHAS. E. SCHOLL, recently appointed general sales manager of the Bright Light Reflector Company, Inc., Brooklyn, N. Y. He has been with the company since 1935, and has been manager of the engineering division for the past five years.

U.S. Rubber Expands At Lowell, Mass.

Occupancy of plant No. 1 of the original Lowell Ordnance Works, Lowell, Mass., by the wire and cable department of the United States Rubber Company, has been announced by C. W. Higbee, manager of that department.

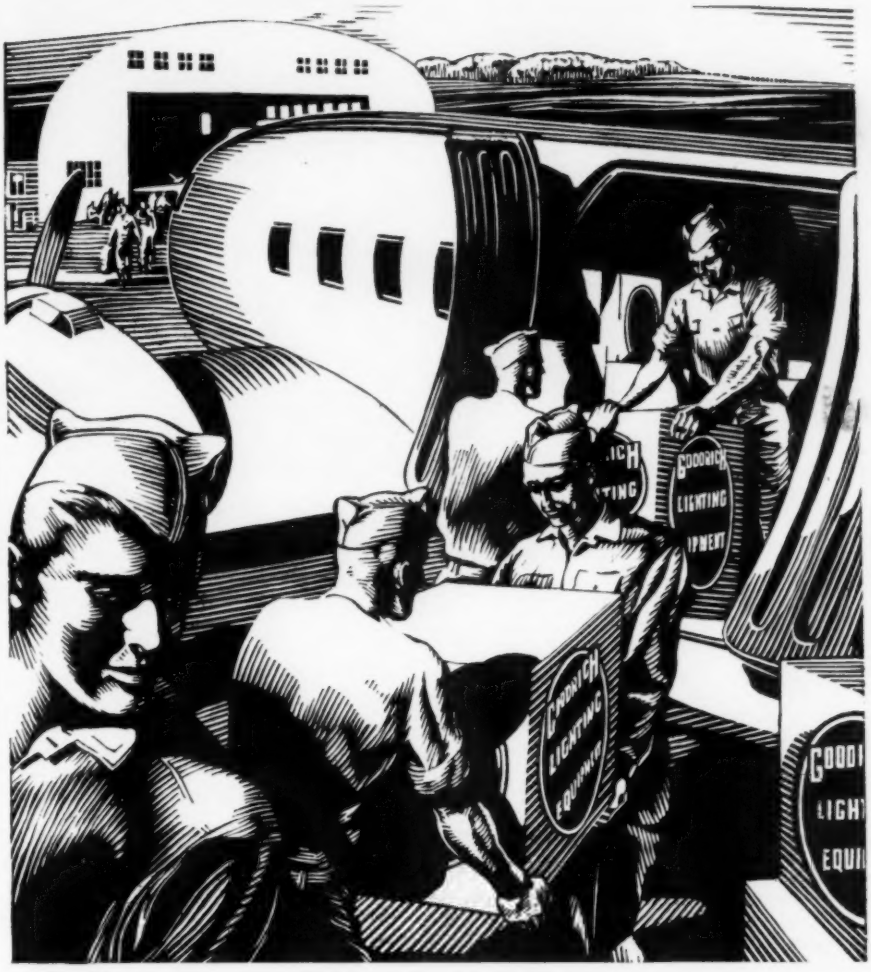
He stated that present plans call for the installation of machinery and other necessary equipment in about one-half million square feet of floor space as soon as the ordnance department removes ammunition manufacturing equipment.

Approximately 1,500 people will be employed at this plant in the manufacture of cable for the Signal Corps.

Sylvania Produces Own Radio Show

Employees of the Salem, Mass., plant of Sylvania Electric Products, Inc., and from plants in nearby towns, are taking part in a one-half hour radio show which is broadcast each Saturday night over WESX in Salem.

This variety show is the outgrowth of a quiz program which the company use to produce on that station. All of the talent, vocalists, orchestra,



SEE-Power for the Pacific Front
—in a hurry!

IN a matter of minutes, four powerful motors will break into a full-throated roar, and this vital cargo of Goodrich lights will go streaking high above the blue waters of the Pacific. Their destination—and the specific uses to which they will be put—are military secrets. But you can bank on this: Goodrich lighting serves Uncle Sam's forces faithfully and well with porcelain enameled finish that defies corrosion in any climate.

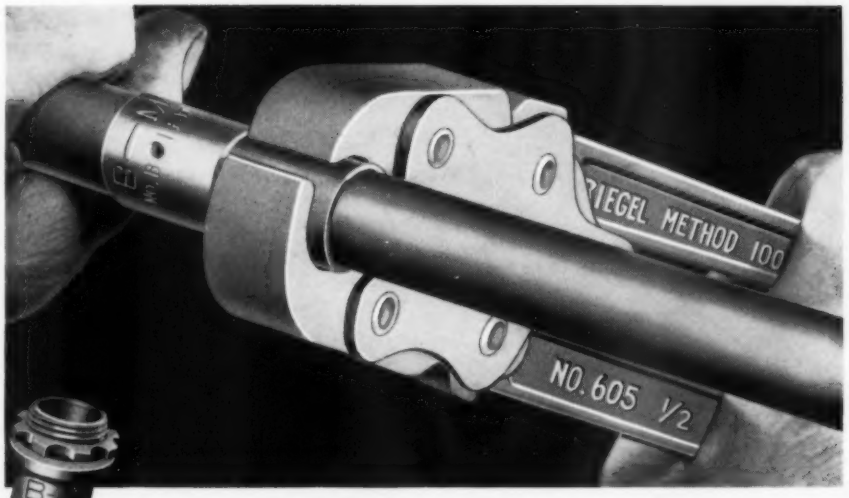
That's the thing about Goodrich porcelain enameled equipment . . . the finish is permanent, unaffected by climatic conditions. Glass is fused into the metal to become a part of it, assuring complete protection for the underlying surface. Even after years of service, they're good as new.

Goodrich porcelain enameled lighting, designed in hundreds of sizes and styles, is serving the war effort everywhere, indoors and out.

Sold through electrical wholesalers

HIGHLITE STOCKLITE REFLECTO FLOODLIGHT RLM DOME

GOODRICH
ELECTRIC COMPANY
4600 BELLE PLAINE AVENUE, CHICAGO 41, ILLINOIS



E·M·T CONNECTIONS IN A FEW SECONDS!

With B. M. Fittings

TWO QUICK SQUEEZES give you Finer, Faster Conduit Connections. B-M Fittings do away with the twisting, turning and tightening of nuts and save you valuable time and materials. Then too, they are stronger, neater and much easier to work with in tight places. Start using B-M Fittings today. Have more satisfied customers—more profits from each job!

(All B-M Fittings carry the Underwriters Seal of Approval)

DISTRIBUTED BY

The M. B. Austin Co., Chicago, Ill.
Clayton Mark & Co., Evanston, Ill.
Clifton Conduit Co., Jersey Cy., N. J.
Gen. Electric Co., Bridgeport, Conn.
The Steelduct Co., Youngstown, Ohio
Enameled Metals, Pittsburgh, Penn.
National Enameling & Mfg. Co., Pittsburgh, Pa.
Triangle Conduit & Cable Co., New Brunswick, N. J.

Prompt Deliveries on Properly Rated Orders

BRIEGEL METHOD TOOL CO. • Galva, Ill.

Speed plant communications through this vocal "NERVE CENTER"

BELL VOICE PAGING and amplifying SYSTEM

BELL Voice-Paging Equipment provides the speed and efficiency modern plants demand of their call systems. It locates individuals in the quickest time possible . . . cuts "hold-the-phone" delays to the minimum . . . provides for plant-wide broadcasting of announcements, instructions, time signals and alarms—and even permits broadcasting of recorded music and entertainment. Its widely adjustable, precision-built, standard units — specially designed for industrial use—can be grouped to fit any need. Also designed for quick, easy expansion or re-arrangement. Get details on this new BELL Industrial Sound Equipment.

BELL SOUND SYSTEMS, Inc.
1197 Essex Avenue Columbus, Ohio
Export Office: 5716 Euclid Ave., Cleveland, Ohio

BELL SOUND SYSTEMS

"emcee," etc., are local war-workers, mostly from the Sylvania plants.

It is reported that the success of the program, which is heard through the local area of Massachusetts and New Hampshire in which several Sylvania plants are located, is receiving the attention of other manufacturers throughout the country.

About 500 men and women from the Sylvania plants attend the program, which is produced in the main ballroom of a local hotel.

Double Award To Jenkins Bros.

When two flags were raised over the plant of Jenkins Bros. at Bridgeport, Conn., last month, each bearing an additional star, it represented the third award to that company by the United States Maritime Commission and the fourth award by the Army and Navy. The awards have been made for excellence in production of valves for cargo and fighting ships.

The flags were hoisted at a simple ceremony which took place on the lawn of the plant. The new "M" and "E" pennants were raised by six returned Army men who are back at their old jobs at Jenkins Bros.

Bernard J. Lee, vice-president in charge of manufacturing, spoke briefly at the ceremony. "These flags," he said, "represent seven merit awards to our workers. Our men and women have worked hard by night and by day to meet the quotas of war materials set by the Army and Navy and Maritime Commission. Each ship in Uncle Sam's giant shipbuilding program must have its complement of valves when it goes down the ways. Our workers have done their utmost in turning out this vital equipment."

Sylvania Promotes Pirie Adds J.B. Stevenson

The promotion of William C. Pirie and the addition of John B. Stevenson to the staff are recent changes in the advertising department of the lighting division of Sylvania Electric Products Inc., according to an announcement from Paul E. Ellison, director of advertising.

Mr. Pirie, formerly assistant sales promotion manager, has been appointed assistant advertising manager in the office of John P. Waters, manager of

the lighting division's advertising at 500 Fifth Ave., New York, N. Y.

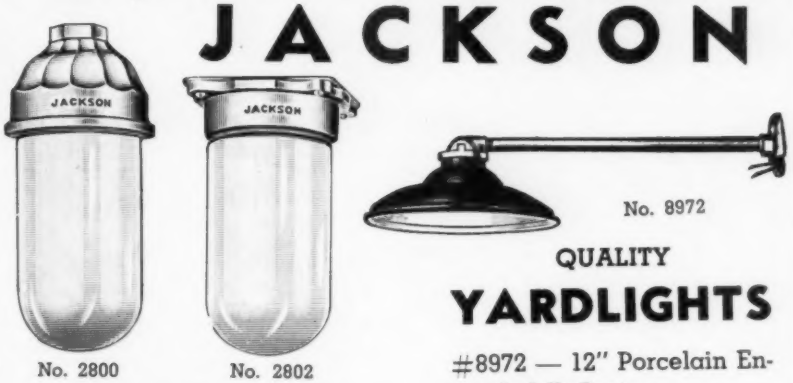
Mr. Stevenson, formerly in the Boston sales office, is the new assistant advertising manager in the same division, in charge of the advertising office at Salem, Mass.

M. S. WOLFSON has assumed his new duties as general manager of the Metropolitan Industries, 222 So. Clinton St., Chicago. He will direct the distribution and sales of fluorescent lighting fixtures and electric appliances as well as other of the company's products. He was formerly with Electric Corp. of America.

G. E. Hunt, newly appointed acting-manager of the Atlanta territory for Cutler-Hammer, Inc., was formerly manager of that company's Indianapolis office, and has been with Cutler-Hammer for 24 years.

Ready for Immediate Shipment

JACKSON



No. 2800 No. 2802 No. 8972

VAPOR PROOF UNITS

The 2800 at left has a cast aluminum hood tapped for ½" pipe. For 60-100 Watt Lamp.

The 2802 at right is an outlet box type and can be mounted on either a 3¼" or 4" box. For 60-100 Watt Lamp.

QUALITY YARDLIGHTS

#8972 — 12" Porcelain Enameled Reflector

#8974 — 14" Porcelain Enameled Reflector

Wired complete— For REA installations.

• Sold thru Electrical Wholesalers
• Manufacturers of Industrial Lighting Equipment

JACKSON ELECTRICAL COMPANY
900 W. VAN BUREN STREET CHICAGO 7, ILLINOIS

Here's why YOU should sell TRICO RENEWABLE FUSES

1—IT'S A LINE THAT HAS A FUTURE!
The powder-packed element is not interchangeable—YOU get all the repeat business and profits.

2—YOU HAVE SOMETHING REALLY WORTH WHILE TO TALK ABOUT!
Custom-built and engineered to give user THREE TIMES THE SERVICE.

3—NO PRICE COMPETITION!
TRICO quality sells itself—price is no issue

4—SERVICE!
Always dependable—even under most trying conditions.

5—CONTROLLED "THRU THE WHOLESALER" POLICY!
Your profits are protected year after year

6—NATIONALLY ADVERTISED
Over a million subscribers read TRICO advertisements monthly.

Key your selling efforts to the fuse line with a FUTURE . . .

SELL TRICO

THEY'RE "POWDER PACKED"

TRICO TRICO FUSE MFG. CO. Milwaukee Wisconsin FUSES

HERMETICALLY SEALED
against the
TROPICS
Thordarson's new development, Transformer terminals in glass, finally and completely overcomes the dangers of break-downs caused by extreme humidity and mysterious fungus growths which often attack electrical equipment.

The Thordarson principle of sealing terminals in glass is applicable, not only to small transformers, but for large power and filament transformers, and reactors as well.

THORDARSON

TRANSFORMER DIVISION
THORDARSON ELECTRIC MFG. CO.
500 WEST HURON STREET, CHICAGO, ILL.

Transformer Specialists Since 1895

ORIGINATORS OF TRU-FIDELITY AMPLIFIERS

Build Sales Volume with

Magic-flo

MULTIPLE FILTER

COFFEE BREWER

CLASSIC

"The Most Beautiful Coffee Brewer in America!"

The Classic, America's Most Beautiful Coffee Brewer, illustrated, is a thrilling modern, streamlined coffee brewer, especially designed for the American home. Public accepts on sight. Sales volume develops rapidly.

SPARKLING GLASS BOWLS—Handblown, transparent, sturdy; high quality heat resistant glass.

PALLADIUM DECORATED — Distinctive, smart, luxurious.

RICH BLACK PLASTIC FITTINGS—Cool, comfortable handles. Decanter cover keeps coffee hot.

Two sizes — 6 cup and 8 cup — ready for prompt shipment.

DISTRIBUTORS. For greater profits, write today for complete information regarding Magic-flo *Palladium Decorated* Coffee Brewer.

PAT. PENDING

Magic-flo

MULTIPLE FILTER

• Extracts maximum coffee flavor • Works *fast* and *simply* • Keeps coffee clear • Correctly "times" the brew • Easy to keep sparkling clean

GENERAL CONSUMER PRODUCTS, INC.

4619 North Western Avenue • Chicago 25, Illinois

Wiring Bureau To Train Engineers

The training of application engineers that are needed for adequate wiring installations in the first million new homes after the war was announced by the National Adequate Wiring Bureau last month at a luncheon attended by representatives of the electrical and home press.

Through a national information and training program, the bureau will aid the building groups by supplying the "know-how" that will be needed for the planning of electrical wiring in the post-war homes.

Mr. A. E. Schanuel, field representative of the national Adequate Wiring Bureau characterized the electrical wiring job in post-war homes as a major operation, and stated that: "Our electrical industry must give to this national problem every last ounce of the new adequate wiring 'know-how' that we learned by teamwork during the last six years.

"Leading the way in our cooperation with the building fraternity, and the public, will be the application engineers in the major electrical centers. The work of these men will be supported, as in pre-war years, by the kind of electrical fraternity teamwork that has rung up an all-time record of educational and service activities for this industry.

"And it should be emphasized that the application engineers are not just technical men. They are advisors, counsellors, industry leaders in contact work on the all-important electrical wiring phase of home building.

"Our industry is the one partner in the construction field that has a continuing lifetime contact with millions of families in their homes, Mr. Schanuel stated, "We supply 24-hour service and all of the equipment and appliances that go to make up electrical living."

Open Sales Offices In New York City

Two divisions of American Industries Management Company, Chicago, have announced the opening of branch offices at 101 Park Ave., New York, N. Y.

Schwarze Electric Company, Adrian, Mich., has named B. L. Clegg as branch manager to handle its line of audible signal devices. Mr. Clegg was formerly with Westinghouse Electric and Manufacturing Co.

Stanley & Patterson, Inc., also of

HEXACON ELECTRIC SOLDERING IRONS

Expressly designed for the multitude of complex and tedious soldering requirements, the HEXACON Hatchet Type soldering iron has found extensive use because of its extreme ease of manipulation.

Perfect balancing—permits long operation with minimum of fatigue. As with all HEXACON units, the Hatchet type is ruggedly constructed, and is tested for twice the intensity required by the Underwriters' Laboratories, assuring greater-than-average service life with economy and efficiency. Operates on AC or DC of any cycle, and is available in voltage ranges from 32 to 250 volts. Equipped with replaceable elements, and all other features of HEXACON Plug Tip Irons.

WRITE FOR LITERATURE

Descriptive bulletins, describing the complete line of HEXACON electric soldering irons, will be sent on request.

HEXACON ELECTRIC COMPANY

146 W. CLAY AVE., ROSELLE PARK, N. J.

HEXACON

Adrian, Mich., has appointed Eugene Sullivan as manager of its new branch. The company manufactures hospital and fire alarm systems.

OBITUARIES

B. DeMattia

Barthold DeMattia, president of the Accurate Manufacturing Company, Garfield, N. J., died suddenly on March 2nd. He was 61 years old.

Ten years ago Mr. DeMattia took over what was the Accurate Rubber Company and organized it as the Accurate Manufacturing Company to specialize in the production of electrical tapes. Before that time he had been with the DeMattia Foundry and Machine Company, which he had founded with his brother.

In his home town, Clifton, N. J., he was active in community affairs, serving as commissioner of education and on the board of directors of St. Mary's Hospital.

He is survived by his wife, four daughters and one son. The son, Victor A. DeMattia, is secretary of the Accurate Manufacturing Company, and a son-in-law, T. J. Lackner, is sales manager.

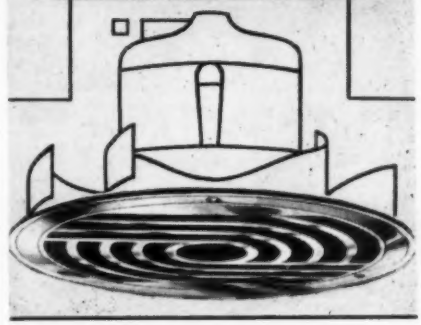
M. O. Troy

Matthew O. Troy, a commercial vice-president of the General Electric Company, died suddenly on March 13, on a train outside of Schenectady, N. Y.

Mr. Troy had been with GE for 47

years, starting on test work at Schenectady in 1897. He worked successively at the Lynn, Mass., plant where he

PLAN *today* for TOMORROW'S PROFITS



EASY SALES WITH *Blo-Fan*

"SPOT VENTILATION"

The demand for small "unit" ventilators for homes was well established before the war; it will be much greater afterwards.

Just an ordinary fan will not meet the exacting requirements when residential building is resumed. "Blo-Fan," combination fan and blower, is engineered to provide maximum efficiency, ease of operation, and eye appeal. Write us to keep you posted on new developments as they are announced.

BUY U.S. WAR BONDS *Now!*

PRYNE & CO., INC.

1245 E. 33rd ST. LOS ANGELES

Branches (to be reestablished after war)

SAN FRANCISCO · SEATTLE · CHICAGO · NEW YORK

For Faster
- Easier -
Dependable

SURFACE WIRING

Use **P&S CABLETTES**

For farm buildings, outbuildings, attics and basements. Note the simplicity of design — Ease of wiring and assembly — No boxes, clamps, connectors or soldering.

PASS & SEYMOUR
INCORPORATED
SYRACUSE 9, N. Y.

headed the transformer testing department, in the engineering department at Schenectady, at Pittsfield where he headed the transformer division, and then back to Schenectady in 1923 as executive assistant manager in the central stations division.

He was born in Burlington, N. C., in 1872, and received his degree in electrical engineering from the University of Virginia in 1896.

J. H. Parker

J. H. Parker, well-known as a manufacturer and manufacturer's agent, died recently at his home in Brooklyn, N. Y. He was president of the Union Insulating Co. of Parkersburg, W. Va., and until his death actively managed the company's sales office in New York.

Mr. Parker was a pioneer in the electrical field, particularly in the development and sales of porcelain insulation products. He was one of the first five men to receive the Certificate of Honor from the National Electrical Manufacturers Association for having been active in the electrical industry for fifty years.

A familiar figure among the manufacturers at NEWA spring meetings for many years, Mr. Parker was well-known for his stories of early experiences in the electrical industry. Often he proudly

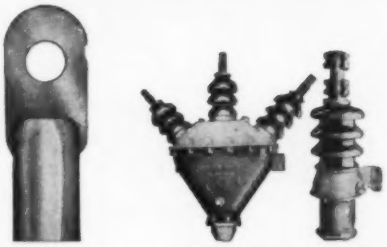
claimed having sold the first porcelain high tension insulator in this country, and that he was instrumental in having the Duggan Porcelain Co., later the Imperial Porcelain Co., Trenton, N. J., manufacture these insulators. He was also one of the moving spirits in the formation of the General Porcelain Company in 1908, the company that joined with several other concerns in 1926 to form the Porcelain Products Company.

His son, W. M. Parker, is general manager of the Union Insulating Co.

C. F. White

Charles F. White, 64, president of the George H. Buckminster Co., Boston, Mass., and for many years a leading figure in the New England electrical supply field, died at Melrose, Mass., on March 28.

ELECTRICAL SPECIALTIES
FOR HEAVY INDUSTRIAL SERVICE
RMC
FROM STOCK



Write for a complete selection of RUSGREEN bulletins

ENDULATORS (POTHEADS) ALL SIZES • ALL SHAPES • ALL VOLTAGES • ALL TYPES • BUS SUPPORTS • SPLICING KITS AND MATERIALS • INSULATING COMPOUNDS

★ ★ ★

RUSGREEN MFG. CO.
14260 Birwood Avenue • Detroit, Mich.

Make **PERMANENT** **Connections** *Quickly*

This big, strong, heavy duty Sherman Solderless Lug is a favorite everywhere. It's easy to install, and it makes an efficient, permanent connection. Extra thread plate for strength. Floating pressure pad attached to screw. Serrated gripping surfaces. Sizes up to 500m CM. Write for catalog!

H. B. Sherman Mfg. Co.
Battle Creek, Mich.

Sherman SOLDERLESS LUGS

Cold Corners AND WARM WORKERS

Heats in Winter Cools in Summer

Aggressive dealers are featuring Thermador Fan Type Portable Electric Heaters for war plants where they are widely used to bring comfort to workers. Clean, compact, and safe, Thermador Heaters are portable and can be placed in cold, damp parts of war plants to improve working conditions.

With a flip of a switch, these double-purpose units heat in winter—circulate cooling air in summer. Flameless, fumeless Thermador Heaters are only available on priority orders in portable or built-in types for use on 115-volt A.C. service, 1650 watts capacity, or 230-volt A.C. in capacities up to 5000 watts.

Thermador also manufactures built-in Electric Heaters, Electric Ranges, Electric Water Heaters, and Small Transformers.

Write today for Catalog

THERMADOR
ELECTRICAL MFG. COMPANY
5119 South Riverside Drive
Los Angeles, Calif.
"Seven Leagues Ahead"

Association News

DETROIT — The 1943 issue of "Who's Who in Electrical Detroit" was published by the Electrical Association of Detroit. It contains an alphabetical listing of all members with telephone number, company connection (briefed) and a code number that sends the user back to the page on which is listed the company, address, mailing zone number and the group listing of all personal members connected with that company.

KANSAS CITY—Mr. T. B. Allen, district manager of appliance sales of the General Electric Co., addressed the Electric Association of Kansas City at its regular luncheon meeting in the Aztec Room of the Hotel President. Mr. Allen is well known in the middle west in the appliance and merchandising field.

Harry E. Moore, secretary-manager of the association passed away on January 24, 1944 and members feel that they have lost an excellent executive and a good friend. Mr. Moore had held this office since November 1942.

MILWAUKEE — A recent report from the Wisconsin Radio Refrigeration and Appliance Association stated that through the cooperation of Frank W. Greusel, of the local WPB office, the association was able to give an authentic statement on the details of the War Production Board's order for the manufacture of electric irons.

The leading Milwaukee firms engaged in the servicing of refrigerators met to form a permanent organization. Initial steps were taken at a conference to consider the request of a federal agency that they organize to train service men. The agency heading up this national movement is the National Refrigeration Service Manpower Committee.

The wholesale appliance distributors of Milwaukee decided at a recent meeting to set up a general policy for the post-war era and a committee is now at work on the job of drafting a statement of this policy.

NEW ORLEANS—"Pioneers of the Electrical Industry" were honor guests of the Manufacturers, Wholesalers,

midget TRIPLOC

compact, heavy duty plugs and receptacles

● Midget Triploc plugs and receptacles are ideal for use with a great variety of portable electrical equipment where operating conditions are severe. Interchangeable 2, 3, or 4 pole contact units permit many different types of assembled combinations. The protected female contacts may be assembled in either plug shell or receptacle housing for protection in line side of circuit. Automatic bayonet lock is simple and effective; polarity is maintained and correct insertion of plug assured by unequal spacing of contacts. Ground protection is provided. Write for General Catalog 1100 with complete listings of all types. Rating 10A, 250V., 15A, 125V.

THE PYLE-NATIONAL COMPANY
1352 N. Kostner Avenue, Chicago 51, Illinois

The STAR ★

FUSE PULLER

and

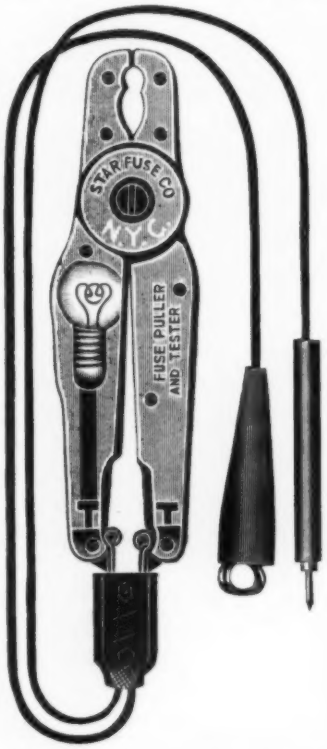
CIRCUIT TESTER

DOES **2** ***BIG JOBS:***

1 Safely removes blown fuses

2 Quickly locates dead circuits

Indispensable in Homes, Factories, Hotels, War Plants



Saves Time, Prevents Shock or Injury, Eliminates Guesswork

Made of a Transparent Plastic having in one of the legs a small lamp in series with a resistance and can be used to test 110 to 250 volts circuit. It will pull fuses from 10 to 100 Amperes. Thousands of electricians find this tool handier than Test Lamps. Requires the use of only ONE hand to quickly and accurately test circuits.

Retails at $2.75 each, $1.50 additional for Leads

For the past six months, the Star Fuse Puller and Circuit Tester has been advertised in more than 70 leading publications throughout the United States.

WRITE TODAY

for Quantity Prices

STAR FUSE CO.

166 Centre St., New York 13, N. Y.

Utilities Division Meeting held in the Banquet Room of the St. Charles Hotel. Former Association President H. E. Meade extended a special welcome to the "Pioneer" guests, and also said a few words on post-war planning and the future of the electrical industry. Honored at the meeting were fifteen recipients of Golden Anniversary certificates who have been connected with the electrical industry for 50 years or longer.

Mr. E. S. Lammars, a consulting and application engineer with the Westinghouse Electric and Manufacturing Co., addressed the group on "Electronics, the New Science." The Westinghouse film "New Science of Electronics" was then shown.

Members of New Orleans electric refrigeration industry met at Delgado Trades School to consider plans for keeping the residential and commercial refrigeration units of the city in operating condition. Plans call for the immediate inauguration of training classes for refrigeration servicemen, to be offered without cost to those attending, by Delgado Trades School. Officers elected were president, Robert Corkern; vice-president, John C. Ackermann; secretary, I. W. Lampton; treasurer, H. E. Lewis.

In connection with the Executive Committee Luncheon Meeting held February, President Osterberger announced appointment of the following committees to serve during 1944: Membership: Al Lindauer, chairman; Rudolph Viener, W. B. Meek, Jas. Aldige. Attendance: H. Braselton, chairman; Joseph Friedler, James Roos. Planning: W. E. Clement, chairman: Wayne Wands, C. S. Green.

PASSAIC COUNTY, N. J.—The Passaic County Electrical League recently held a joint forum meeting with the Passaic County Chapter A.I.B. at the Cedar Cliff Hoel. Samuel G. Hibbon, electrical inventor and director of applied lighting of Westinghouse Electric and Manufacturing Co., lectured on and demonstrated some electrical household and manufacturing products that are to be available when the war is over.

PHILADELPHIA — The Lighting Equipment Manufacturers Group of the Electrical Association of Philadelphia launched a Cooperative Industrial Lighting Activity at a recent meeting. It is primarily designed to aid industries engaged in war work so

CHICAGO ANCHORING UNITS *HOLD!*

Here's the dependable anchoring unit for use with machine bolts. Each 2-unit set consists of 4 pieces —two of malleable iron and two of lead—to insure maximum holding power. Furnished plain and threaded in 6 sizes for ⅜" to 1" bolts. With Chicago Anchoring Units, holding power equal to the tensile strength of the bolt being anchored can be obtained by using additional units.

- **IMMEDIATE DELIVERIES on these and other Chicago Anchoring devices. Write for Catalog and wholesaler's discounts.**

CHICAGO

CHICAGO EXPANSION BOLT COMPANY

2229 W. Ogden Ave. • Chicago 12, Ill.

MINERALLAC

MINERALLAC HANGERS AND BUSHINGS

LISTED BY UNDERWRITERS LABORATORY

For Cable or Conduit. Can be installed at any angle on wood or steel beams.

MINERALLAC ELECTRIC COMPANY

25 N. Peoria St. Chicago

THEODORE B. DALLY

N. Y. City Phone Cortlandt 7-6786

Economy with COOL FUSES

WARE HI-LAG

LINKS LOCKED INTO CIRCUIT

NON-HEATING CONTACTS

Keep Motors Humming

100% Quality

APPROVED BY UNDERWRITERS

Mfgr's. Agents Territory Open

WARE BROTHERS

4420 W. Lake St. Chicago 24, Ill.

WARE

Renewable

HI-LAG FUSES

that through adequate and proper lighting, their efforts to conserve vital materials, save man-hours and maintain continuous and increased production will be advanced.

Under the sponsorship of the Lighting Equipment Manufacturers Group of the Electrical Association and the Philadelphia Section, Illuminating Engineering Society, an elementary and refresher course on lessons in practical illumination had its start on Tuesday evening, January 18th and will continue for 12 consecutive weeks, concluding on Tuesday evening, April 18th.

The Manufacturers Division of the Electrical Association held its first meeting of 1944 in association headquarters. Cullen T. Pearce, engineering and service manager of the middle atlantic district, Westinghouse Electric and Manufacturing Co. spoke on the subject "Electronics at Work" followed by a new sound motion picture of the same name.

After the picture the group adjourned to the studios of Station KYW where under the direction of Leslie Joy, general manager, an interesting inspection was made of the various electronic applications utilized in a modern broadcasting studio. The meeting concluded with the showing of a film on the progress of radio.

The association's courses in refrigeration and oil burner service training are being continued in 1944. All sessions will be held in the Murrell Dobbins Vocational School Annex, classes meeting twice weekly. Each session includes a lecture and a period of practical work on equipment.

The Contractors Division of the association, for the third consecutive year, is conducting a lecture course for electricians and helpers. The current course is on "Electronics" and was prepared by Dr. S. Reid Warren, Jr., Moore School of Electrical Engineering, University of Pennsylvania, and is to be presented by members of the Moore school staff. The course includes two series, one starting January 5th and the other December 6, 1944. Sessions are held Wednesday evening in association headquarters.

Move to Eliminate Use of No. 14 Wire

A resolution recommending the amendment of the National Electrical Code to prohibit domestic circuits of less than 20 amps. in wire capacity and circuit protection, was prepared and approved at a recent meeting of the

DON'T ABUSE!

YOUR ELECTRICAL EQUIPMENT

PROTECT IT WITH *Paragon* TIME DELAY RELAYS

Approximate size of 800 Series, 4⅞" high, 2⅛" wide, 1¾" deep.

NOTHING is more vital to the war production program than electrical equipment. Guard it with Paragon automatically reset, synchronous motor operated time delay relays, which:

1. Protect rectifiers and tube filaments from application of plate current before filaments are preheated.
2. Accurately control the various steps of motor acceleration.
3. Dependably delay the closure of elevator control circuits.
4. Stagger the closure of multiple circuit systems so that full load will not be applied at start.

Paragon Time delay relays have countless uses . . . for example: machine tool control, therapeutic machine operation, controlling compressor bypass valves, split second control of light exposure in photographic, blue print and X-Ray work, operation of pneumatic tube carrier systems, etc.

Accuracy of the time cycle and operation of the timer not affected by changes in ambient temperature or vibration. Designed for panelboard mounting or may be mounted to standard handy box or single gang switch box.

Built by an organization of engineers and skilled craftsmen specializing on electrical equipment since 1905. Write for a bulletin on 800 series Time Delay Relays.

PARAGON ELECTRIC COMPANY

403 S. DEARBORN STREET

CHICAGO 5, ILLINOIS

Paragon Chicago

BUILDERS OF ELECTRICAL EQUIPMENT . . . SINCE 1905

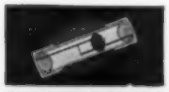
OR PEACETIME

EVERY Electrical Instrument and circuit requires fusing for safety.

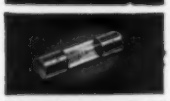
Demand increasing in industries for new *fuses throughout* to protect irreplaceable equipment.

LITTELFUSES

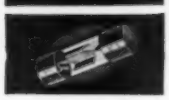
Littelfuses are widely preferred for such superiorities as these:



Locked Cap Assembly: Caps and tubes made practically one-piece. **No cement.** Thoroughly sealed against moisture.



Mechanical Depolarization: Elements protected against shock and vibration by twisting at 90°.



Non - Crystallizing Elements. "Gooseneck" spring-forming, taking up contraction and expansion.

Extractor Posts, Silver-plated Beryllium Copper Fuse Clips, Panels, Signals, all accessories. Write

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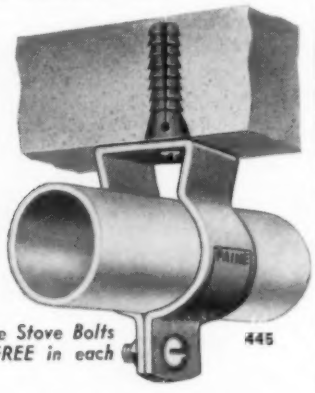
CONDUIT CLAMP

All clamps are rust proofed and are designed to hold porcelain bushings, thin wall or rigid conduit, also armored cable.



Correct size Stove Bolts furnished FREE in each clamp.

Complete Catalog mailed upon request.

THE PAINE CO.
2952 Carroll Ave. Chicago 12, Ill.
Offices in Principal Cities

PAINE
FASTENING and HANGING DEVICES

Pacific Coast Electrical Association. Copies of this resolution are being prepared and will be sent to interested organizations throughout the country to enlist their support in the movement to amend the Code.

Success of this movement would eliminate No. 14 wire in house wiring circuits. The West Coast Association believes that this is a desirable objective dictated by the trend toward increasingly higher wattage appliances.

NEMA Honors C. E. Wilson

By unanimous vote at a recent meeting, the board of governors of the National Electrical Manufacturers Association, adopted a testimonial to Charles E. Wilson, executive vice-president of the War Production Board. The testimonial was presented to him at a dinner meeting of the American Arbitration Association.

At that time Mr. Wilson also received the Distinguished Service Medal of the American Arbitration Association in recognition of his extraordinary contribution to the winning of the war.

Electric Service Alters Name

The Electric Service Supplies Company of Philadelphia has announced that, beginning March 20, 1944, the name of the company will be Electric Service Manufacturing Co. It was stated that the company's ownership, personnel and manufacturing remain the same.

• Manufacturers Lines Wanted

● With more than twenty years experience selling supplies and equipment to the Electrical and Hardware Wholesalers in the State of Ohio, we are interested in securing additional lines to sell in this territory on strictly commission basis. References furnished.

Box No. 41, c/o Wholesaler's Salesman, 330 West 42nd Street, New York, 18, N. Y.

TORK

TURN ANYTHING ELECTRICAL ON & OFF REGULARLY

***The* TORK CLOCK CO., Inc.**
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LAMPS
For Radiant Energy —Baking And Drying

Meet industry's demands for radiant energy-heating and drying by featuring Nalco Dritherm Carbon Filament Lamps. Available in Inside-Silvered finish (no reflectors required) or in Clear Glass style.

Write for prices and discounts

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HOW TO "SPOT" an ALERT JOBBER

The familiar orange-and-blue package and the "Allen Spot" are sure signs of the alert jobber.

SPECIAL SOLDERS & FLUXES for all soldering requirements mean a complete line—one for *every* customer.

"Underwriter's Approved" fluxes; also products meeting army-navy, air corps specs.

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REPRESENTATIVE WANTED

INCANDESCENT LAMPS

Sales representatives wanted for many principal cities. Fine immediate income, plus postwar security, for draft exempt man with lamp experience. Send complete business history together with photo to

Box 115, Station A, Toledo, Ohio
Our men know of this advertisement.

MORE FACTS ON PRODUCTS

Signal Systems –"Cannon Signal Systems" for the modern hospital is the title of the new 16-page catalog issued by the Specialties Division of the Cannon Electric Development Co., Los Angeles, Calif. The catalog describes and illustrates nurse call systems, doctor's paging systems, registers, time recorders, special switches and lights.

When writing mention WHOLESALER'S SALESMAN

Water Systems —The F. E. Myers & Bro. Co., Ashland, Ohio recently published a consumer booklet No. MS44 which describes its line of pumps and water systems for farms and homes. Numerous product and application illustrations are used.

When writing mention WHOLESALER'S SALESMAN

Electrical Equipment — A 28-page booklet "Care and Maintenance of Electrical Equipment," published by the Square D Company, Detroit, Mich., contains simple instructions and illustrations for keeping switches, panelboards and switchboards in good operating condition. The book also contains a parts ordering list of Square D electrical equipment.

When writing mention WHOLESALER'S SALESMAN

Machine Tool Accessories — A new booklet published by the Ideal Commutator Dresser Co., Sycamore, Ill. illustrates and describes the company's different accessories, for example, triple-duty line centers, new "etcher-demagnetizer", "machine ship" metal etcher, portable demagnetizer, and electric cleaners.

MANUFACTURERS' LINES WANTED!!!

Well established Manufacturer's Agency wants additional lines to sell to electrical wholesalers in the state of Texas on strictly commission basis.

Address Box 42
WHOLESALERS SALESMAN
330 West 42nd St., New York 18, N. Y.

ON ALL SIX POINTS . . . JUSTRITE IS JUST THE LIGHT FOR . . .

Write for complete details and prices.

SAFETY . . . Justrite Safety Lanterns are approved for safety by Underwriters' Laboratories, Inc., for Class 1, Group D locations; by U. S. Bureau of Mines for use in Methane Gas and Air Mixtures; by U. S. Bureau of Marine Inspection and Navigation for use in pump rooms of tankers. These approvals are your assurance that when you sell Justrite . . . you sell . . . SAFETY.

SERVICE . . . Justrite Lanterns provide instantaneous, dependable service at all times wherever there is need for brilliant . . . and safe light.

ADAPTABILITY . . . There is a Justrite Lantern for nearly every industrial use . . . around hangars, oil fields . . . railroads . . . ships . . . docks . . . and war plants to name just a few.

COMPLETE . . . Each Justrite Lantern is especially designed for the special requirements of the industry for which it must serve. This gives a well rounded complete line of safety lanterns.

DEMAND . . . Today, there is a greater demand than ever before for safe, dependable light . . . Justrite.

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JUSTRITE *Safety Products*

SAFETY CANS · FILLING CANS · OILY WASTE CANS
APPROVED SAFETY ELECTRIC LANTERNS

No Need for Extra Circuits!

• With a main circuit for carrying the high voltage power current, the lower voltage for lighting and machine tool operation can be most economically provided for by means of step-down transformers.

By running a branch line from the power line, the need for separate complete high voltage and low voltage circuits is eliminated, thereby effecting a considerable saving in labor and critical materials.

DONGAN ELECTRIC MFG. CO.
2989 Franklin St. Detroit, Mich.
"The Dongan Line Since 1909"

DONGAN TRANSFORMERS

ILSCO *Electrical Connectors*

ILSCO electrolytic copper connectors are made from pure copper strips and tubing. Weight is one-third to one-sixth of cast connectors . . . but performance is often superior to heavier and bulkier cast copper alloy connectors.

Buy conductivity . . . not weight!

MAIL THIS COUPON TODAY

Please rush us sample and illustrated 32-page catalog.

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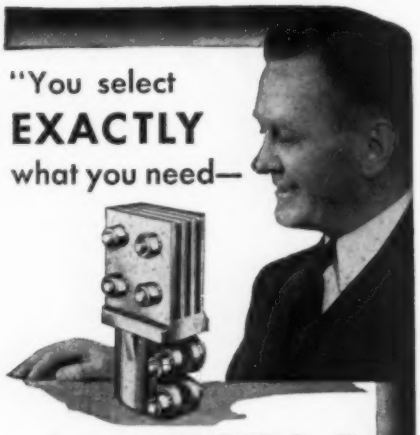
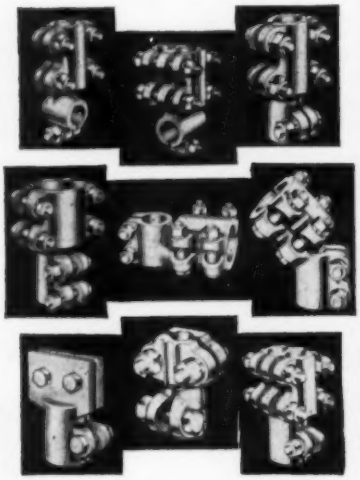
ILSCO COPPER TUBE & PRODUCTS, Inc. CINCINNATI, OHIO



"You select
EXACTLY
what you need—

— from the **COMPLETE** line"

Stud Connectors and **Solderless Terminal Adapters** for distribution and power transformers . . . for connecting to cable, pipe or bus bar . . . in line or at any angle. Connectors with reversible clamping caps take two different ranges of cable sizes. Furnished for any number of conductors. A few of Penn-Union's many types:



Also . . . the most complete line of Service Connectors, Cable Taps, Tees . . . Straight and Parallel Connectors . . . Bus Supports, Spacers . . . Grounding Clamps, Terminal Lugs, etc. etc.

Penn-Union conductor fittings are the first choice of leading utilities, industrials, electrical manufacturers and contractors—because they have found that *"Penn-Union" on a fitting is their best guarantee of Dependability.* Write for Catalog.

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ERIE, PA. *Sold by Leading Jobbers*

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Conductor Fittings

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Now Wakefield brings you ..the New BEACON

to help you serve your customers *better!*

DESIGNED for high quality fluorescent lighting at lower cost, the BEACON is a "honey" for lighting essential offices or drafting rooms. Provides smooth, shadowless light to help handle paper work faster and reduce eyestrain.

Maintenance is especially easy since there are no horizontal surfaces on which dust can collect. Hinged louvers make lamp replacement easy.

Etched, ribbed glass on the side panels gives smooth, pleasing light; louvers on the bottom of the unit prevent direct view of the lamps.

Ballasts are only partially enclosed — which means cooler, better operation.

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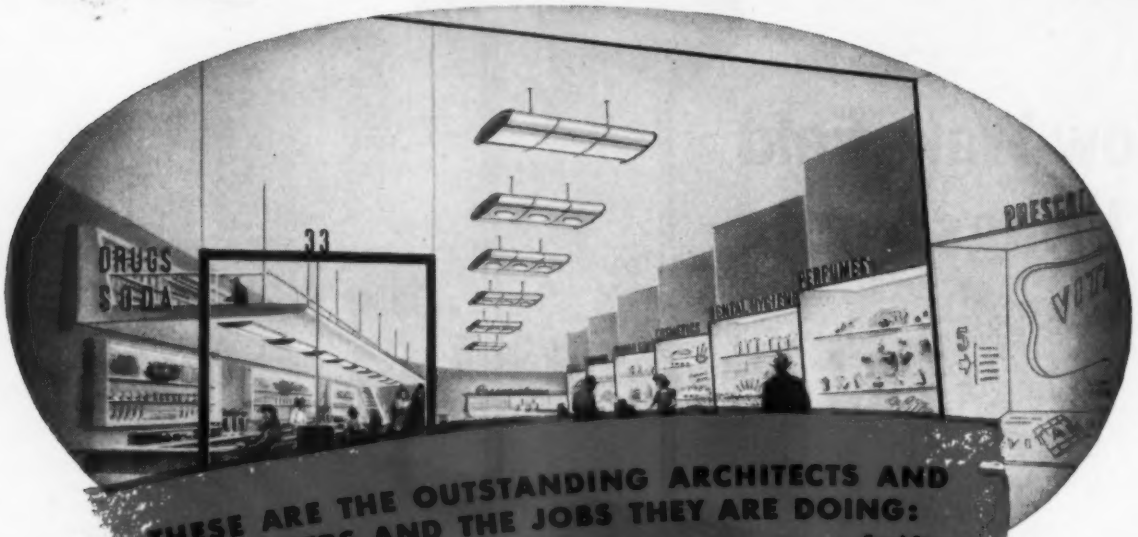
HELP PREVENT INDUSTRIAL ACCIDENTS . . . GUARD MOVING PARTS . . . HAVE GOOD LIGHT . . . BE ALERT.

THE F. W. Wakefield BRASS COMPANY

RED ● SPOT LIGHTING FOR WAR PRODUCTION . . . FOR PEACETIME FUTURE

VERMILION, OHIO

G-E PAVES THE WAY FOR



THESE ARE THE OUTSTANDING ARCHITECTS AND DESIGNERS AND THE JOBS THEY ARE DOING:

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WILLIAM EDWARD KAPP, Architect, Detroit . . . . . Offices
THEODORE CRILEY, JR., Architect, Los Angeles . . . . . Home
WURDEMAN & BECKET, Architects, Los Angeles . . . . . Store
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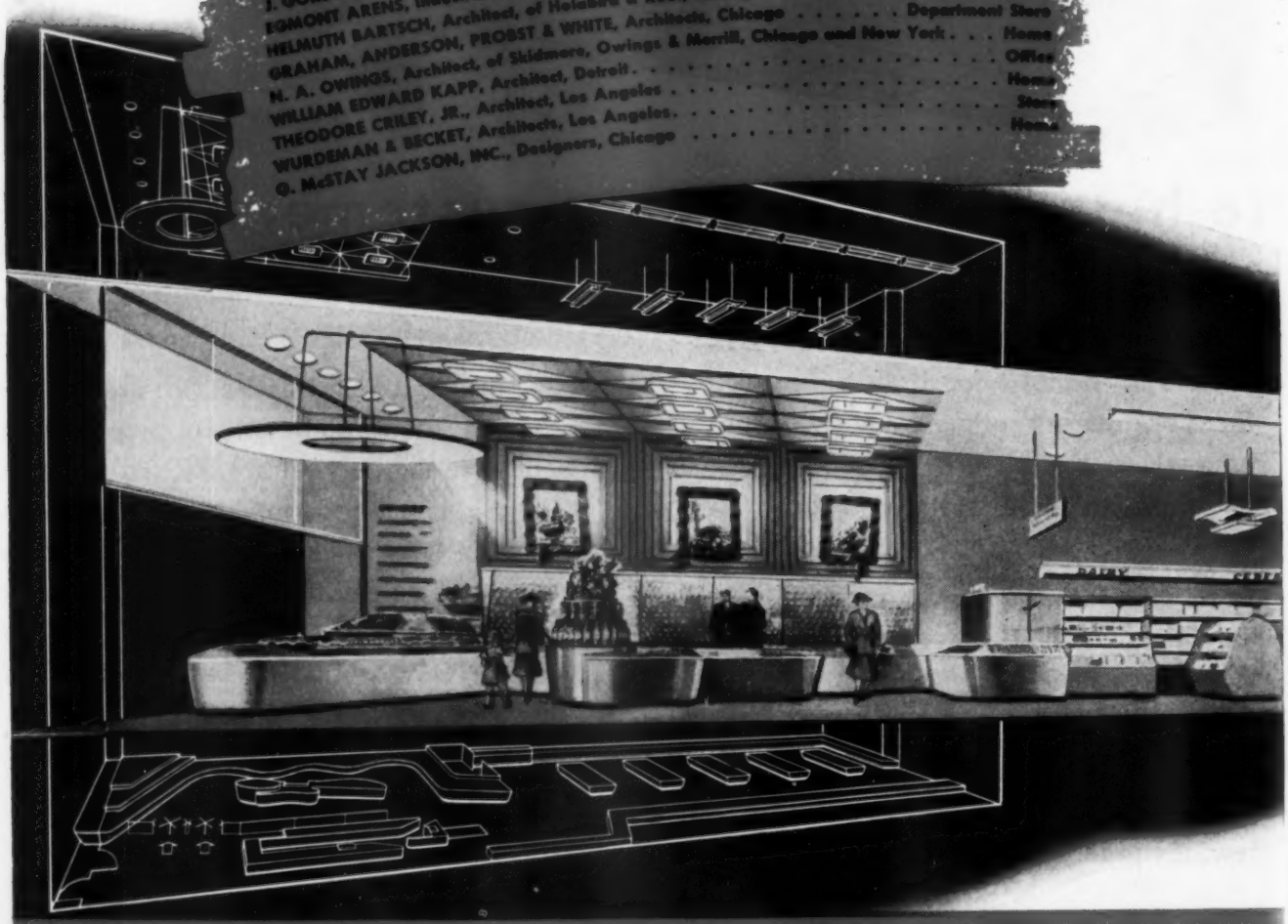


GENERAL ELECTRIC

POSTWAR LIGHTING PROGRESS!

GENERAL ELECTRIC BRINGS TO THE LIGHTING INDUSTRY THE CREATIVE IDEAS OF FAMOUS ARCHITECTS AND DESIGNERS FOR BETTER COMMERCIAL AND RESIDENTIAL LIGHTING

THE postwar store, office and home offer the greatest opportunities for lighting progress in the history of the lighting industry. About 1,500,000 commercial establishments and some 600,000,000 sq. ft. of office space will be ready for better lighting; about 10,000,000 new homes will be needed to bring housing demand into balance with supply in the decade after the war.

To supply these markets with the kind of lighting that sets new standards of comfort and attraction will require development of new and improved lighting techniques. General Electric now offers the lighting industry a comprehensive program to stimulate this development.

G-E Enlists Outstanding Talent

Ten famous architects and designers have been retained by G-E to work out creative ideas for better lighting. Their assignments will cover small and medium-size stores, offices, and low and medium-price homes.

Their plans and suggestions will be made available:

1. To other architects, so that new lighting tools and techniques will become familiar to the entire architectural profession.

2. To fixture manufacturers, so that they may develop lighting units that are acceptable to architects and designers and at the same time efficient and easy to make.

3. To distributors, contractors and lighting companies.

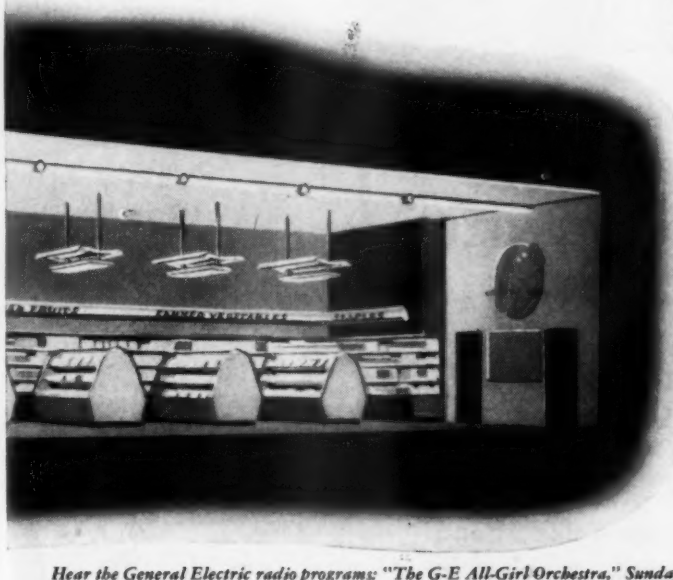
4. To the potential buyers of better lighting, so they may have a wider appreciation of modern lighting practice.

To Promote Lighting Progress

We believe this new G-E program will help the lighting industry give the postwar buyer the benefit of the best planning, the best thinking, and the most effective lighting the industry can provide.

Suggestions for lighting the food store shown at left are described in a new booklet now ready. For your free copy, write Dept. 166WS-E, General Electric, Nela Park, Cleveland 12, Ohio.

A comprehensive G-E advertising program *will bring the work of these outstanding men to all interested groups. An advertisement featuring the food store, for example, appears in the April issues of Architectural Forum, Architectural Record, New Pencil Points, Chain Store Age (Adm.), Progressive Grocer, National Grocers Bulletin and Super Market Merchandising.*



Hear the General Electric radio programs: "The G-E All-Girl Orchestra," Sunday 10 p. m. EWT, NBC; "The World Today" news, every weekday 6:45 p. m. EWT, CBS.

THE BEST INVESTMENT IN THE WORLD IS IN THIS COUNTRY'S FUTURE—BUY WAR BONDS

"TO MAKE LAMPS STAY BRIGHTER LONGER"
The Creed of G-E LAMP RESEARCH

G-E MAZDA LAMPS

SECTION 6000
Of Catalog 37, Pages 6001 to 6036
January, 1944
Replacing Section 6000, dated April, 1939 and Section 6200, dated March, 1942
Busways and Wireways
SAFLEX FEEDER DUCT
SQUARE-Duct
SAFLEX PLUG-IN DUCT
ELECTRICAL EQUIPMENT • KOLLSMAN AIRCRAFT INSTRUMENTS
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NOW IS THE TIME TO MODERNIZE ELECTRICAL DISTRIBUTION SYSTEMS . .

In the face of today's manpower shortage, peak efficiency of electrical distribution systems is vital. It will be equally important in the highly competitive and narrow-margin years ahead.

"Busways and Wireways" illustrates and gives complete data on Square D's complete line of distribution duct. Send for your free copy—and if you have a specific problem in electrical control and distribution, your nearest Square D Field Engineer will be glad to give you sound counsel.

Note to Distributors' Men:

Through advertisements similar to this one, but carrying coupons, we are telling this modernization story to your industrial, commercial and contracting customers—and offering them this new and highly informative bulletin. May we suggest that you stress this same modernization theme as you make the rounds. It makes sense. It will pay dividends to everyone concerned.

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